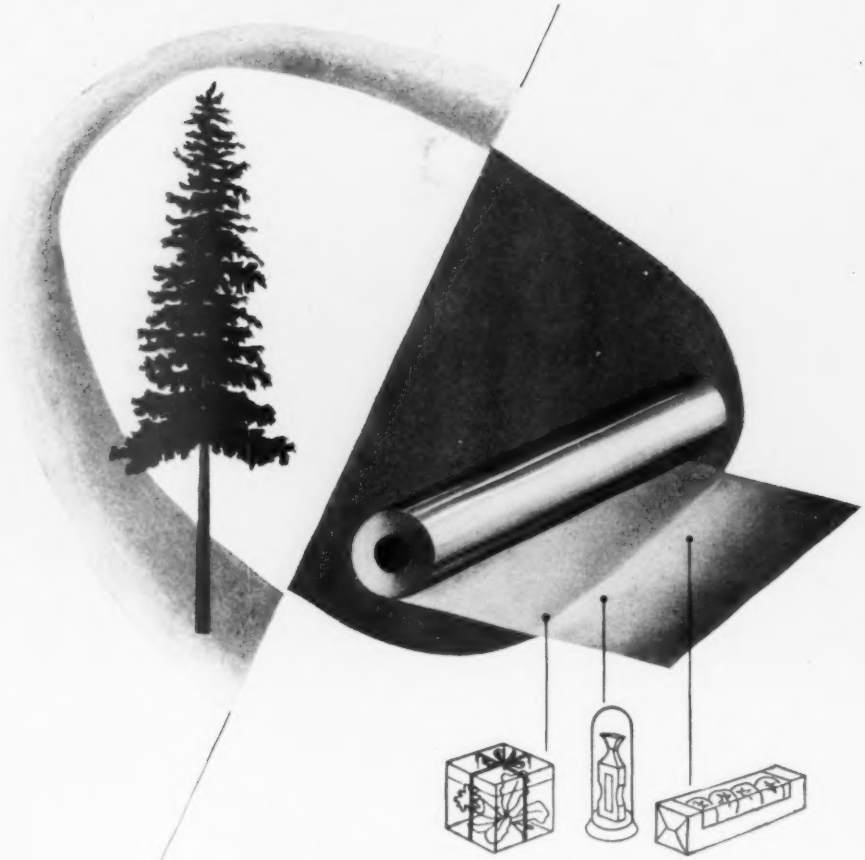
THE PRODUCTION AND MANAGEMENT JOURNAL OF THE NORTH AMERICAN PULP AND PAPER INDUSTRY

PULP & PAPER

MARCH 1951
Vol. 25 No. 3

INTERNATIONAL PAPER CO.'S WOODLANDS—Darkened areas. Pins point to mills, converting and allied plants . . . See Pulpwood Section for first of new series on WOOD OPERATIONS IN SOUTH.

RAYONIER
INCORPORATED



Product protection and eye appeal are provided for a wide variety of articles by transparent packaging materials made from wood.

Cellophane, and cellulose acetate transparent film and sheet, are used increasingly for packaging food products and flowers—toiletries and tools—clothing and candy bars—cigarettes, and many other articles.

These packaging materials are made from highly purified cellulose derived from wood. Rayonier's job is to produce specially developed types of this chemical raw material for use in manufacturing these protective wrappings.

Producers of highly purified wood cellulose for textiles, tire cord, cellophane, plastics

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Pump Heavy Stock with No Dilution . . No Thickening

THIS STOCK PUMPING COMBINATION of the *Hi-Density* Feeder and the Allis-Chalmers PW paper stock pump saves money on stock pumping three ways:

1) Eliminates need for diluting stock for pumping and subsequent thickening for processing.

2) Saves expense of manufacturing and handling wet lap for thickening.

3) Stock can be stored at higher consistence and pumped to the beaters at desired consistence.

The *Hi-Density* Feeder is a shaft and multiple vane assembly that is installed in the stock chest. It feeds pulp as thick as 8% bone-dry consistence into the pump suction. The PW pump can easily handle this stock once it has been fed into the suction.

The PW pump is especially designed for paper stock handling. It has a non-clogging type impeller and is available in several special alloys to suit every type of paper making application. The entire rotating element can be removed in 5 minutes without disturbing the suction or discharge piping.

For help on your stock pumping problems — or on any of the many other paper making processes for which A-C manufactures equipment — call your nearby Allis-Chalmers Sales Office or write Allis-Chalmers, Milwaukee 1, Wis. Ask for Bulletins 08B7112 and 08B6725.

A-3321

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STREAMBARKER

TEXROPE V-BELT DRIVES

VIBRATING SCREENS

HI-DENSITY FEEDER

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AND OTHER EQUIPMENT FOR PAPER MAKING . . .

Hi-Density, Texrope and Streambarker are Allis-Chalmers trademarks.

ALLIS-CHALMERS

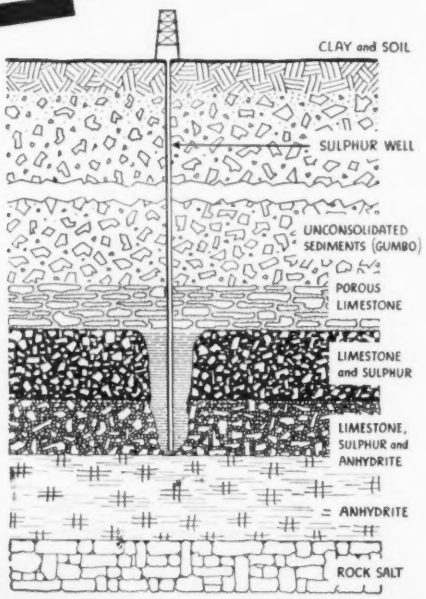
SULPHUR

*Interesting Facts Concerning This Basic Raw Material from the Gulf Coast Region

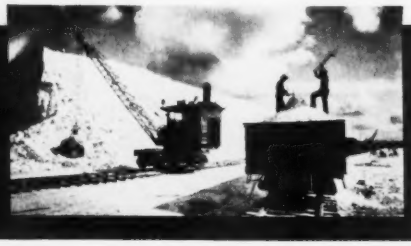
*DEPOSITS . . .

Practically all of the elemental sulphur used in this country comes from mines in Louisiana and Texas.

There, the sulphur deposits occur in the cap rock overlying certain salt domes. The sulphur is mined at depths of 300 to 2,000 feet below the surface. It is melted in place by pumping into the deposit water heated under pressure to a temperature above the melting point of sulphur. The melted sulphur flows away from the limestone and is pumped to the surface where it is allowed to solidify in vats. By such means sulphur nearly 100% pure is produced.



Loading operations at our Newgulf, Texas' mine



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Mines: Newgulf and Moss Bluff, Texas

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FIBER PREPARATION *problems...*

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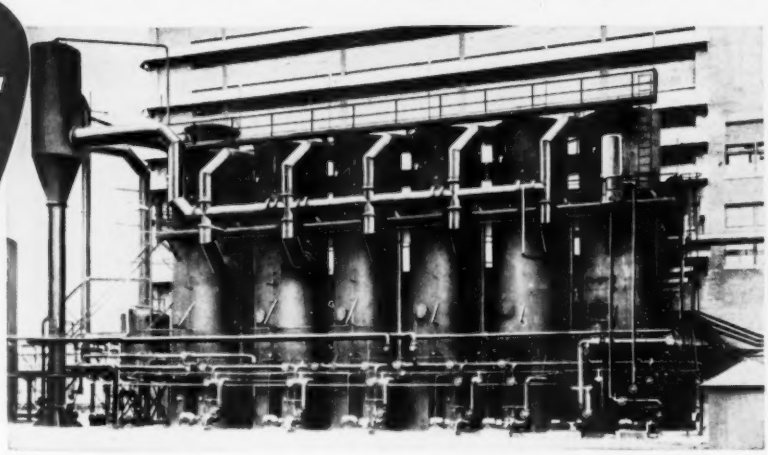
Designed to do your job best!



Conkey Integral Sextuple Effect Evaporator outdoor installation at southern pulp mill.

It's Self-Supporting—in more ways than one! Savings start the day the new Conkey Integral Evaporator comes into your plant. Unit is shipped fully assembled. A single up-ending operation sets it in place. As a result, you save on assembly, parts handling and erection costs. In addition, there are important savings in floor and building space—since no external centrifugal type separators, outside flash tanks and piping are needed. Where weather conditions permit, the entire unit may be installed outdoors—with no housing needed except for pumps and instruments.

Operating advantages of Conkey design are noteworthy. Because it reduces pressure drop losses between effects, it provides an increased working temperature drop across the heating element surface. This means a net positive gain in evaporation—extra evaporating capacity.

Long life—Integral construction eliminates many flanged joints, assuring both durability and tightness. For complete information that may be useful to your firm, write today.

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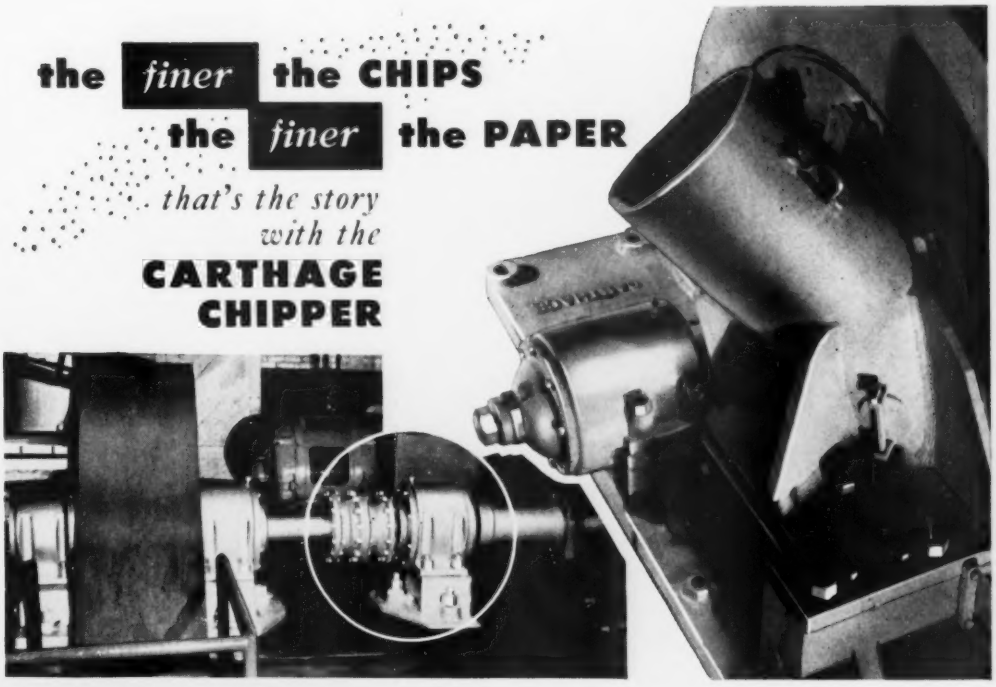
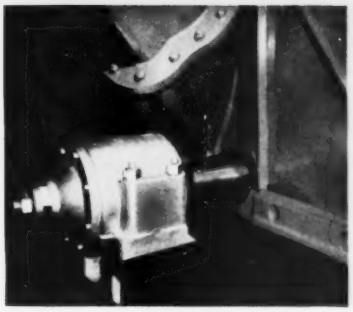
. . . that's the story with the
CARTHAGE CHIPPER





Carthage Machine Company, Carthage, N. Y., manufactures a precision built chipper that literally chews pulpwood logs into the even, uniform chips that mean the production of the highest quality pulp for the highest quality paper. Knives may be pre-set in the grinder room, reducing down time for knife changes to a fraction of that necessary when knives must be set individually.

On the most popular sizes, the rotating mass is nearly 33,000 pounds—which must be held exactly to a pre-set position. In addition the danger of crack-up must be eliminated. All this means that bearings must be able to withstand the toughest sort of punishment—soundest reason of all why SKF Spherical Roller Bearings are used. Time and again they have proved their ability to withstand severe and continuous shock loads, take thrust and radial loads in their stride. Once again SKF has demonstrated ability to help industry put the right bearing in the right place.* 7145

*For information on the Carthage Multiple Knife Chipper, write Carthage Machine Company, Carthage, N. Y.

8 REASONS WHY SKF IS PREFERRED BY ALL INDUSTRY

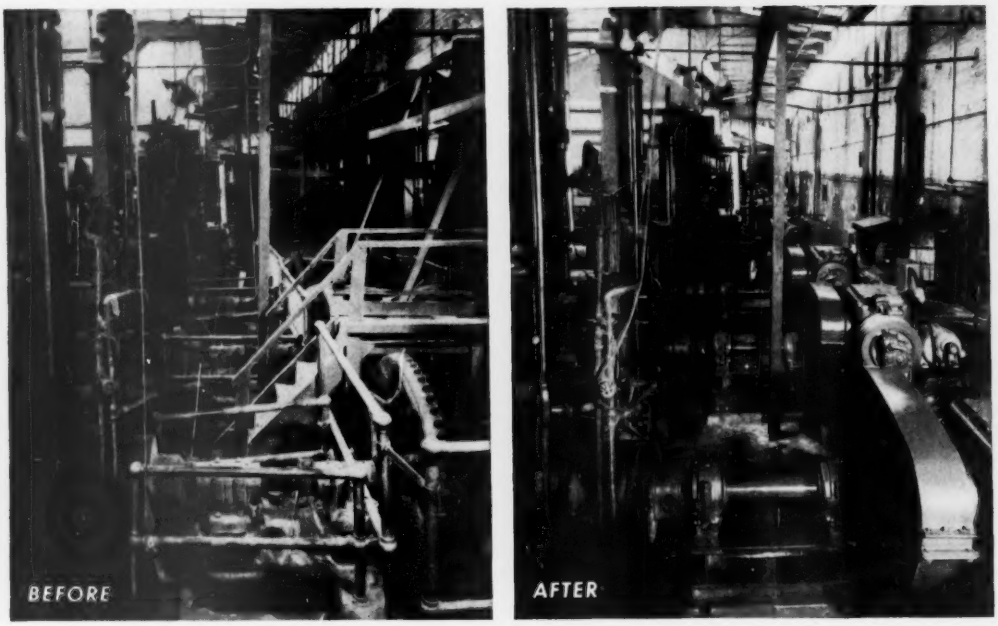
integrity
craftsmanship
metallurgy
tolerance control
surface finish
product uniformity
engineering service
field service

SKF

SKF INDUSTRIES, INC., PHILA. 32, PA.—*manufacturers of* **SKF** *and* HESS-BRIGHT *bearings*

The improved

MOORE & WHITE *Syco* DRIVE



Photographs show a paper making set-up before and after installation of Moore & White Syco Drive. (Name of mill upon request.)

Primarily, this modern mechanical paper machine drive assures you:

- ★ ***Increased production from your present paper machines***
- ★ ***A more uniform, quality sheet at lower machine cost***

Scarcely less important are these vital profit and efficiency factors:

- ☆ ***A saving of up to 50 percent of usable floor space***
- ☆ ***Lowered power consumption***
- ☆ ***Sharply reduced maintenance costs***
- ☆ ***Greater safety to machine operators***
- ☆ ***Greater cleanliness that will promote good housekeeping***

Syco gives you a "clean" mill, free from overhead shafts, pulleys, idlers, countershafts and belts, guards for belts and gears, superstructure, ladders, and catwalks. There is no drive equipment above or below the floor level. Syco is easily installed and serviced by competent mechanics.

The compact Moore & White Syco Drive is simple in its expertly engineered design; precision-built and automatically lubricated for efficient, trouble-free, round-the-clock operation. It precisely synchronizes sectional speed, preserving uniform tension on the sheet at all times. Fingertip micro-adjustment insures uniform caliper, and the desired basis weight and finish throughout the run, at any selected setting. Breaks are fewer. Downtime is minimized. Wastage is cut way down.

Have a Moore & White sales engineer survey your installation and explain the greatly improved profit-potential of the Syco Drive in your operations. Your call involves no obligation.

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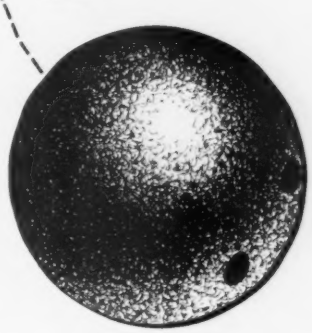

EXPERTS of Brown Company's Technical Service Division can help take the guesswork out of your new product planning—however unusual or difficult it may be. With more than a half century of wood fibre and research experience—and Brown's vast resources—they're ready to work with you in many fields.

Are you uncertain about which fibre to use in creating your new product? Why not let our technical staff help you find the *right* fibre?

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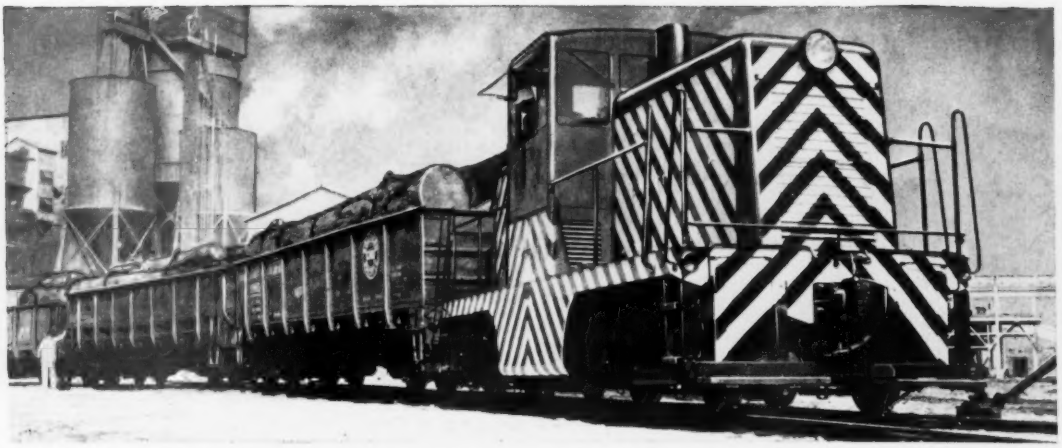
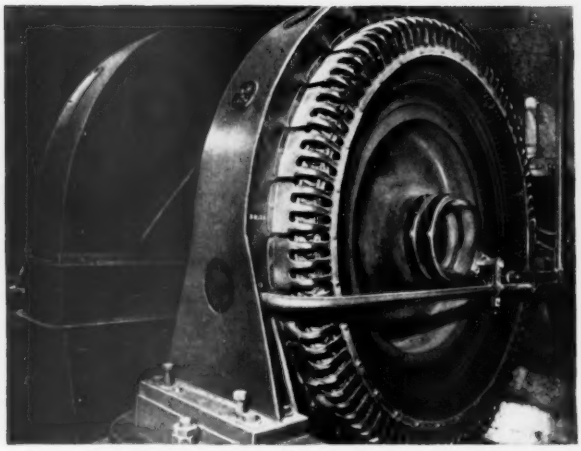


LOW-COST LOG-HAULING! You're off to a good start when logs are moved through your mill by G-E diesel-electric switching locomotives. Made in standard sizes from 25 to 95 tons for industrial use, they have 90 to 95 per cent availability for service, need only a one-man crew, and cut fuel costs materially. Because they emit no cinders or smoke, fire hazards around the wood yard are lessened and greater cleanliness is maintained. Here, a 65-ton G-E diesel-electric switcher feeds a string of loaded cars into a California pulp mill.

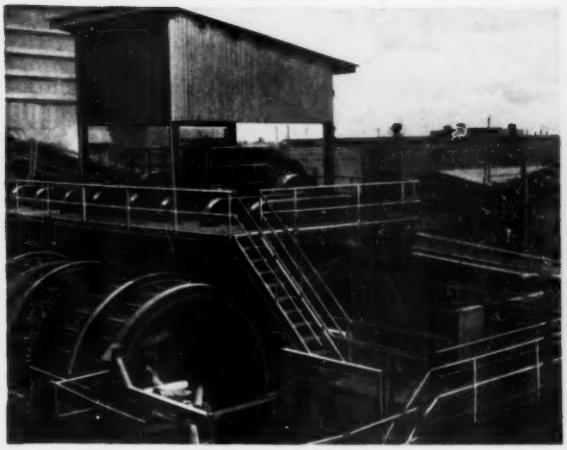
Less downtime...



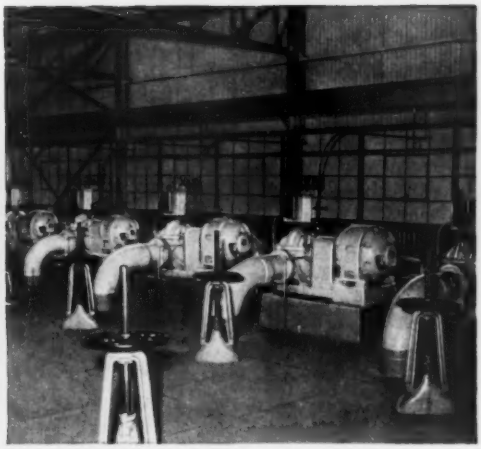
MORE CHIPS IN LESS TIME! Providing high service continuity in wood-chipper service, G-E synchronous motors hold their speed regardless of log size, are sturdily built to withstand shock loads. Here, a G-E 600-hp 327-rpm 2200-volt synchronous motor drives a chipper in a northwestern pulp mill.

COMPLETE MOTOR PROTECTION! For motors up to 5000 volts driving chippers, barkers, etc., G-E Limitamp controllers provide centralized control and short-circuit protection, preventing extensive equipment damage, reducing costly shutdowns.

GENERAL ELECTRIC

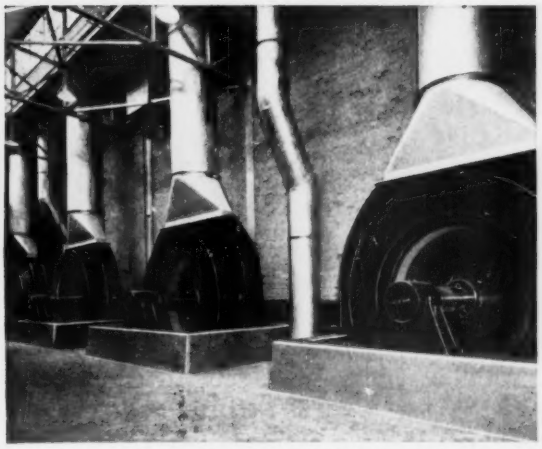


HIGH-TONNAGE BARKING! Whether you use mechanical or hydraulic barkers, the right G-E motor can be depended on to meet your needs, for years of performance in high-tonnage duty. Here, a G-E 150-hp 2300-volt splashproof motor (under canopy) drives two mechanical barkers in a southern pulp mill.



LOW-MAINTENANCE PUMPING! On pumps in all types of pulp mills, years of experience have proved G-E motors need but little upkeep, as in this installation in a western mill, where G-E 100- and 60-hp open (dripproof) motors drive centrifugal pumps in its river pump house.

from logs to laps!



HIGH-EFFICIENCY GRINDING! In this Southern newsprint mill, four G-E synchronous motors rated 4000 hp, 6900 volts, 200 rpm each, drive grinders on other side of wall. Highly efficient, G-E synchronous motors also maintain constant speed regardless of whether the grinder pockets are partly or completely filled.

G-E equipment for pulp mills—engineered to your needs by skilled industry specialists—helps increase production continuity for greater output of uniform-quality pulp.

Every step of the way in pulp-making—from raw logs to finished pulp—General Electric co-ordinated electric equipment can help you boost production continuity, assure pulp uniformity, and cut costs as well.

Here's why: Years of experience in meeting pulp-mill requirements has enabled General Electric to develop a wide range of dependable apparatus. To make doubly sure your selection from this range is correct, your G-E sales engineer and an industry specialist, who know pulp-mill practice and needs, team up to serve you.

With their pooled knowledge to draw on, you're certain to fill your needs in a practical, economical way. Let your G-E representative with his skilled engineering assistance work with you on your pulp-mill modernization plans.

Apparatus Dept., General Electric Company, Schenectady 5, N. Y.

GE

Co-ordinated Equipment

—to cut costs in pulp preparation!

FIRST CHOICE IN PACIFIC COAST SAWMILLS...

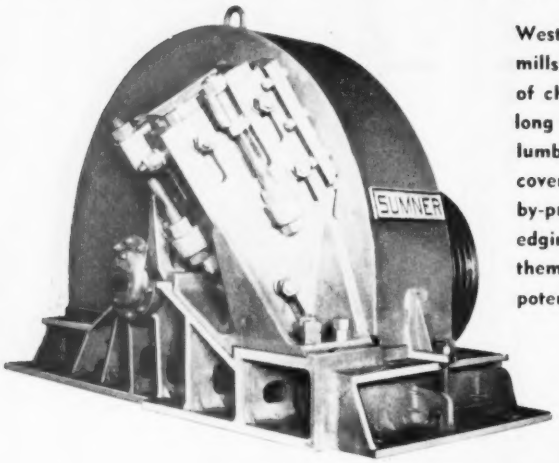
SUMNER

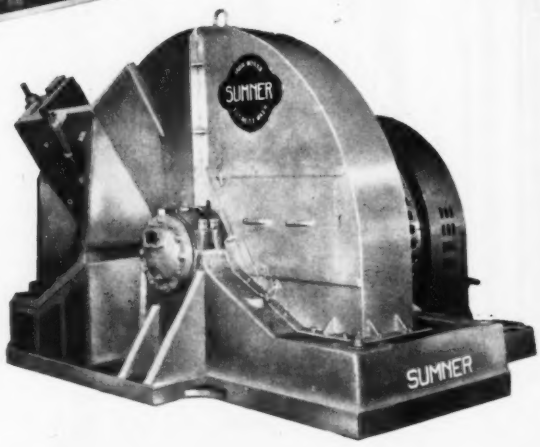
66" 6-KNIFE & 72" 8-KNIFE

CHIPPERS

An ever-increasing number of Pacific Coast sawmills are installing one or more SUMNER 66" or 72" Wood Refuse Chippers.

West Coast pulp and paper mills and board mills have found themselves a steady source of chip supply which, potentially, may last as long as their sawmill connections are sawing lumber; and these same sawmills have discovered a new and consistently marketable by-product, by converting their bark-free edgings and trimmings into chips, which gives them a steady source of income as long as, potentially, they are producing lumber.





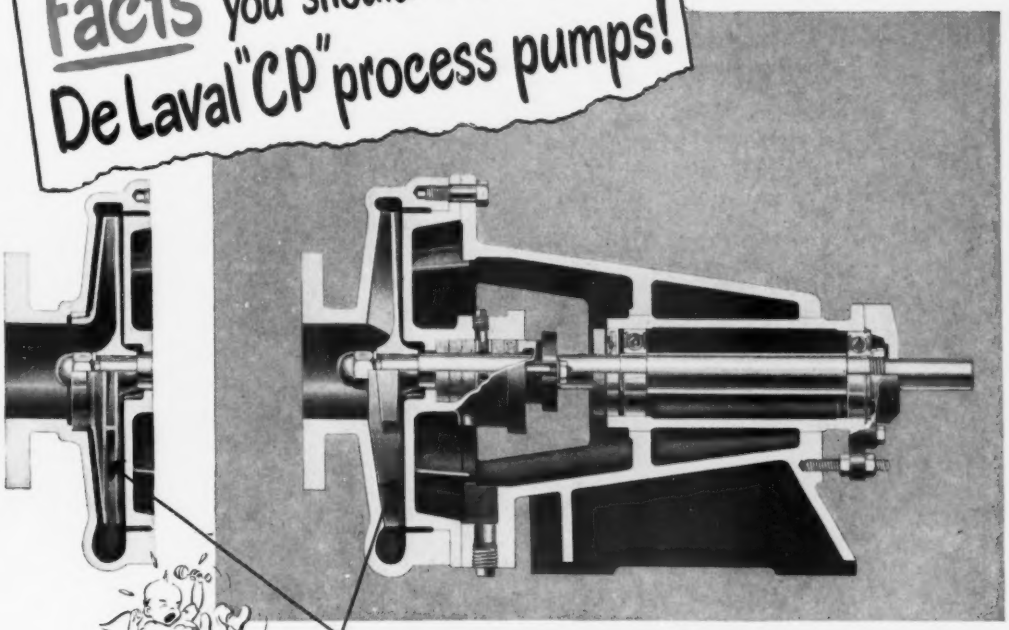
The total units of chips produced daily, from sawmill waste, by SUMNER 66" and 72" Chippers runs into astronomical figures—figures that are highly significant from a conservation as well as an economic standpoint.

SUMNER has a Chipper to meet every chipping requirement — from the smallest, a 36" Re-Chipper, to the world's largest, a 175" Chipper.

Write, Wire or Phone Today for Further Details

SUMNER IRON WORKS Since 1892
EVERETT, WASHINGTON

Facts you should know about De Laval "CP" process pumps!



When service requirements change, you don't have to buy a whole new pump!

The De Laval CP pump can be quickly converted from closed to open impeller (or vice versa) by changing the pump volute and impeller only. This standardization also means you can keep your stock of spare parts to a minimum. Three sizes of shafts, shaft lock-nuts, bearings, bearing cartridges and pedestals *fit all nine sizes of De Laval CP pumps.*

Shims and fussy fits are old fashioned...

When you have to compensate for wear between the impeller and case, it is only necessary to face off these parts, reassemble the pump and position the impeller with the external adjusting screw provided for that purpose. No shims required—no fussy fits.

Did you also know?...

that the external adjusting screw can be used to pull the impeller off the shaft? It is quick, easy and requires no special tools.

DE LAVAL STEAM TURBINE CO., TRENTON 2, N. J.

TURBINES • HELICAL GEARS • CENTRIFUGAL BLOWERS AND COMPRESSORS
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50th DE LAVAL Anniversary

CPP-5

Bingham

PRECISION BUILT FIELD PROVEN PUMPS

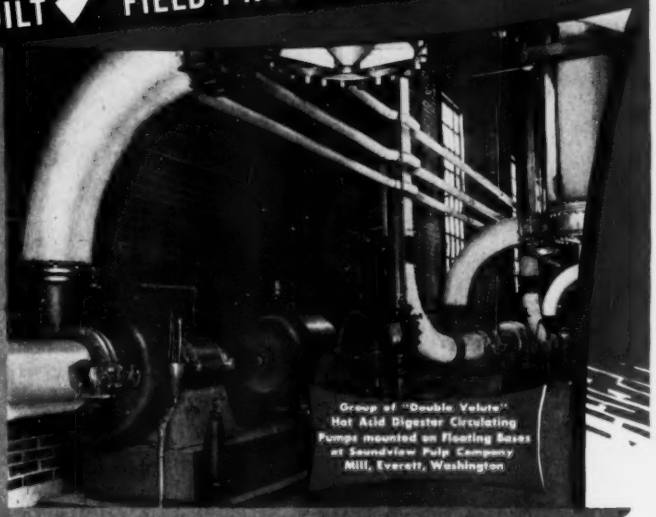
"Double Volute"
DIGESTER
CIRCULATING PUMPS

Bingham Digester Circulating Pumps are of "Double Volute" design. HYDRAULIC RADIAL BALANCE resulting from the "Double Volute" construction permits the shaft to rotate on its true center, thereby minimizing stuffingbox maintenance and dilution of pumpage due to leakage of sealing liquid. The unit type bearing and rotating assembly is easily removable without disturbing suction or discharge piping or driver.

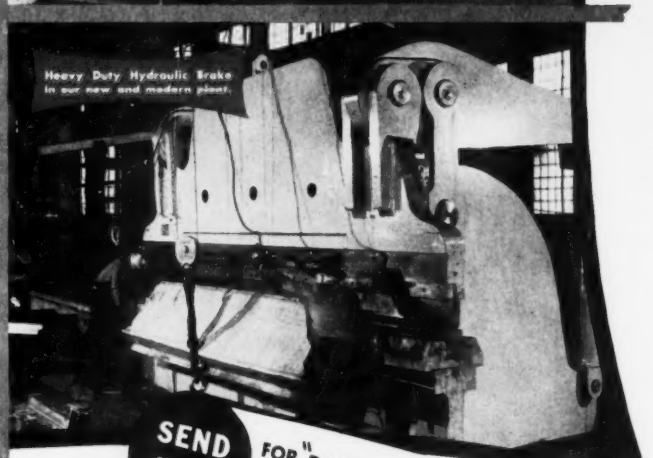
There are more Bingham Digester Circulating Pumps now in use and on order than the total number of pumps of all other makes used for this service.

A salient feature of Bingham Digester Circulating Pumps is their Floating Base which eliminates the possibility of strains being transmitted to the pump case by suction or discharge piping due to changes in temperature.

All Bingham pumps are furnished with fabricated steel bases which are formed on large hydraulic brakes shown (right). This is typical of the heavy duty equipment in our new and modern plant.



Group of "Double Volute" Hot Acid Digester Circulating Pumps mounted on Floating Bases at Soundview Pulp Company Mill, Everett, Washington



Heavy Duty Hydraulic Brake in our new and modern plant.

SEND NOW FOR "DOUBLE VOLUTE" treatise describing the principle and advantages of Bingham "Double Volute" pumps.

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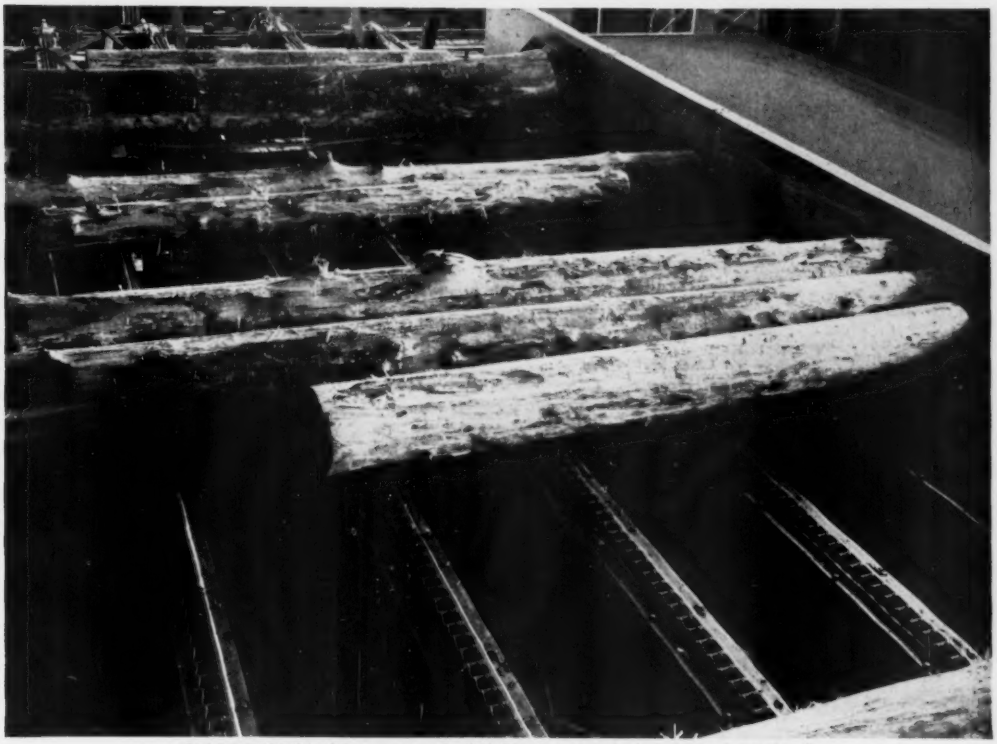
no ONE chain serves every purpose



Link-Belt H-124 plain chain conveyor carrying barked logs from the hydraulic barker in a large pulp mill. Five strands of Class H pintle chain were the natural selection for dependability under this severe service.

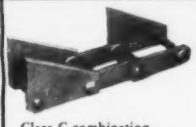
LINK-BELT offers the RIGHT chain for every job... engineered to meet your requirements

Typical chains from the complete Link-Belt line

Class H drag chain—for drag conveyors, handling sawdust or other refuse in runways or troughs.

Class 400 pintle chain — cast links with closed pin joint, for light conveyor, elevator or drive duty.

Class SS bushed roller chain with offset sidebars —for heavy drive service at moderate speeds.



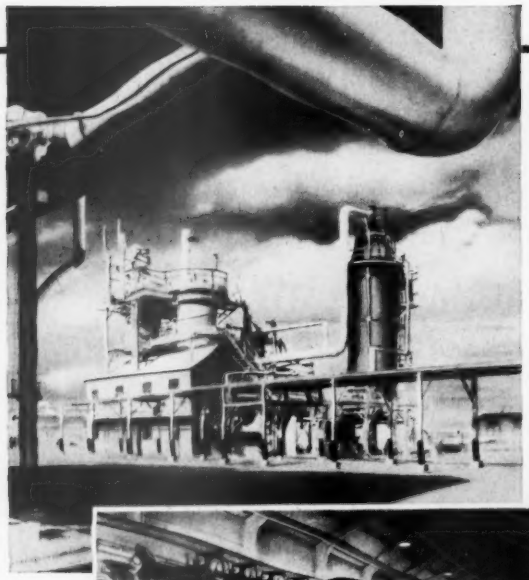
Class C combination chain — popular, durable, low cost design for elevators, conveyors.

Link-Belt offers no single "cure-all" chain to handle every job. From the most complete line of chains and sprockets in the world—we can recommend the *exact* type to fit your particular job requirements—cast, combination, forged, SS, roller or silent. So, whatever your chain problems, big or small, Link-Belt engineers will work with you or your consultants to help solve them.

LINK-BELT COMPANY, Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Houston 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8, Springs (South Africa). Offices, Factory Branch Stores and Distributors in Principal Cities. 12.208-F

LINK-BELT

CHAINS AND SPROCKETS



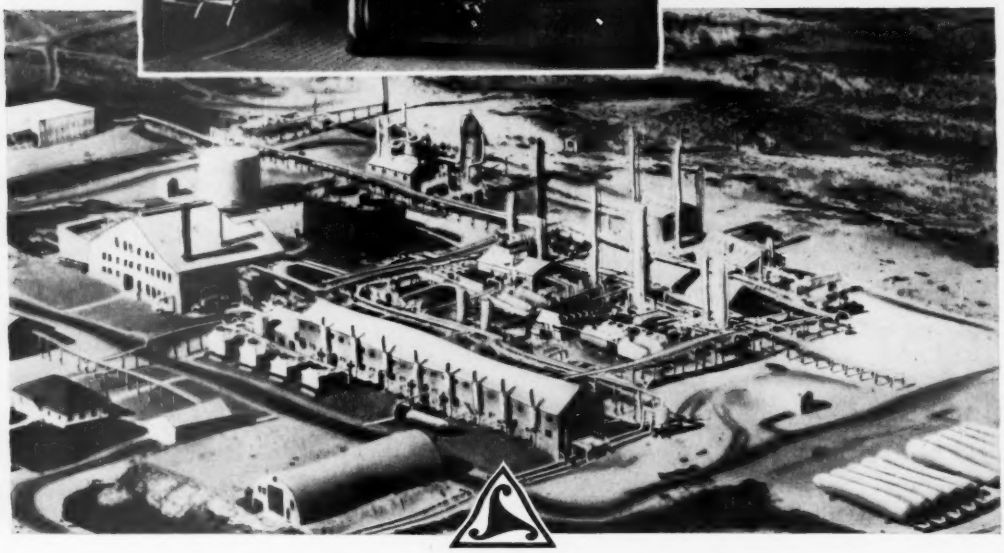
NOTHING IS WASTED

To insure maximum use of the field, the new Elk Basin Unit Repressuring Plant at Elk Basin, Wyoming, includes provision for recovery of over 90 per cent of pure elemental sulfur from sour gas and the generation of flue gas for repressuring. This releases the sweetened natural gas for sale purposes. Operated for the Unit by Stanolind Oil and Gas Company, the plant recovers propane, butane and natural gasoline from casinghead gas. Design and construction were by Stone & Webster Engineering Corporation.

Above: Sulfur Recovery Unit.

Center: Interior of Compressor House showing feed and inert gas compressors.

Below: General aerial view of plant.



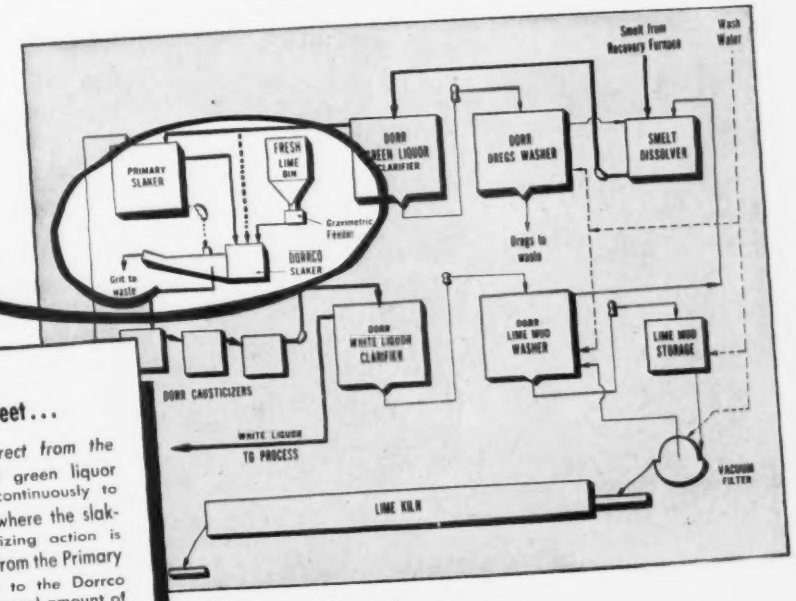
STONE & WEBSTER ENGINEERING CORPORATION

A SUBSIDIARY OF STONE & WEBSTER, INC.

what's NEW in recausticizing plant practice?

2 stage lime slaking!

The slaking station of the Dorr Continuous Recausticizing System . . . standard of the industry . . . has been redesigned to provide an even higher degree of operating efficiency.



here's the flowsheet...

Reburned lime, direct from the kiln, and clarified green liquor are now added continuously to a Primary Slaker where the slaking and recausticizing action is started. Overflow from the Primary is fed by gravity to the Dorrco Slaker and a measured amount of makeup lime is added. Slaking is completed in the Dorrco, which produces a clean milk of lime and a washed, separated grit. The remainder of the flowsheet is the standard Dorr System.

here are its advantages...

- Troublesome handling of hot lime is reduced to a minimum . . . need for reburned lime bin is eliminated.
- Accurate weighing of makeup lime results in "end point" control with no over or under liming.
- Uniform white liquor strength is maintained regardless of fluctuations in kiln discharge.

If you are interested in alkaline pulping processes, write for a new bulletin #3301 describing the Dorr Continuous Recausticizing System in detail.

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BARRY PLACE, STAMFORD, CONN.
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Dorr Technical Services and Equipment Are Also Available Through Associated Companies and Representatives in the Principal Cities of the World. Names and Addresses on Request.

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Paul Bunyan's logging operations in Northern Michigan were so hampered by fogs that he ordered Babe the Blue Ox to inhale and condense them—thus filling a great depression now known as Lake Superior.

A reproduction of this incident from the fabulous life of Paul Bunyan—the fifty-seventh of a series—will be sent on request. It will contain no advertising.

...not a Jack-of-All-Trades...just MASTER of ONE

The proverbial handy man never reached big league stature in any of his jobs. And no single material is master of all corrosion problems found in your pulp mill.

That is why *ESCO* casts not only the commonly used or "standard" stainless steels, but also works in special analyses required to fit specific operating conditions. Thus, the following analyses have been used in manufacturing equipment for pulp mills throughout the country:

ESCO ALLOY 20 for cooler piping after sulfur burner.

ESCO ALLOY 32 (T410) for pulp grinder and pump parts where hardness is desirable.

ESCO ALLOY 40 (T304) for digester strainer screens and circulating systems for kraft mills (alkaline base liquors).

ESCO ALLOY 45 (T317) for digester circulating systems for sulfite mills (acid base liquors).

Perhaps somewhere in your plant there is a trouble zone where corrosion has been excessive, and where *ESCO* metallurgical experience and special stainless steels can provide a workable solution.

ESCO welcomes your consultation. See your nearest *ESCO* representative, or write full particulars of your problem including the corrosive agents used, their concentrations, temperatures, pressures, etc. The *ESCO* catalog of stainless and high alloy steels outlines our facilities and services. Fill in and mail the coupon, and you will receive a copy promptly.

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An Important Message for Every Paper Plant!

Why the Paper Industry Buys INFILCO Water Conditioning Equipment *Again and Again!*

No better testimonial of equipment performance could ever be sought or given than the many repeat purchases resulting from an initial mill installation. These mills have found that regardless of the type of raw water supply, the ACCELATOR® delivers a consistently uniform, clear water, free from product damaging turbidity, discoloration and chemicals. They have found, too, that the ACCELATOR saves them space..up to 80% over conventional water conditioning units. This is possible because quick mixing, coagulation, liquid-solids separation and automatic sludge removal are all carried out in a single compact basin!

You owe it to yourself to investigate the ACCELATOR, today. For a complete printed story of the ACCELATOR, its many advantages and applications, *send for the colorful 28 page Bulletin No. 1825.* If you have a specific problem, call in your nearest Infilco Field Engineer or write the executive offices at Tucson. There's no obligation to buy, of course..only the obligation to yourself to investigate the offerings of the leader—INFILCO.

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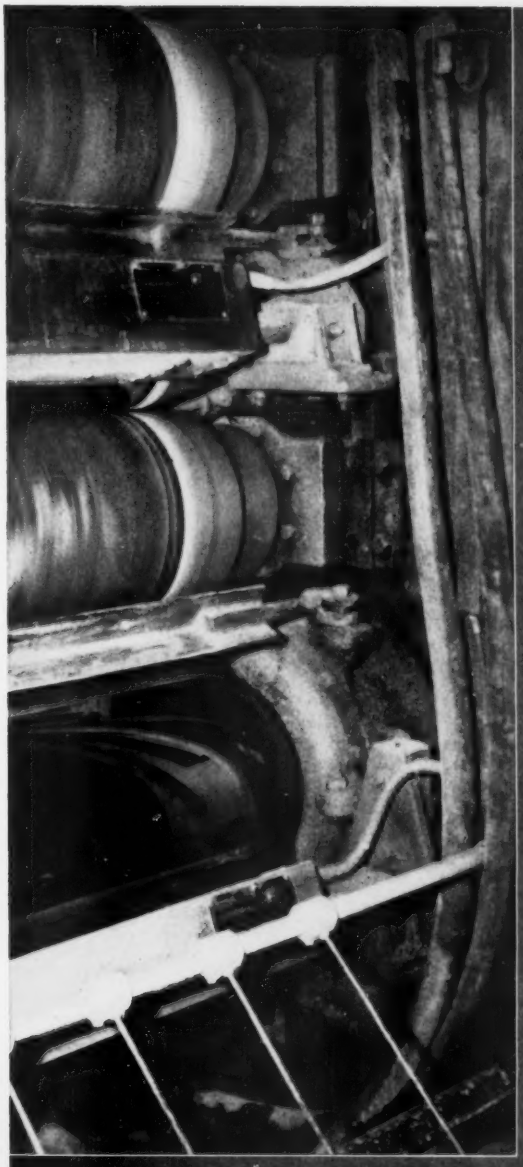

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WESTMINSTER *uses* BECCO H_2O_2 IN COLD STEEP BLEACHING

Through the cooperation of Westminster Paper Co., Ltd., BECCO has completed the mill development work and commercial application of this new high density process, now in its 18th month of successful use.

The new process permits bleaching of groundwood pulps to brightnesses as high as 70-74 . . . at highest chemical efficiency on the simplest sort of equipment. Pulp mixers, retention equipment, and post-neutralization are eliminated.

The simplicity of the process is shown by the picture, taken in Westminster's mill in New Westminster, B.C. A 2-roll padder transfers Hydrogen Peroxide bleach liquor of controlled alkalinity to one or both sides of a high density web. Then the rolls (or sheets) are stored for two or more days at the mill or in transit and thereafter are ready for paper furnishing.

- Upper pipe and brush support
- Upper bleach liquor distributor pipe
- Upper nylon brush for spreading liquor

Simple adjustments of formula adapt the new BECCO process for equally efficient bleaching of sulfites, semi-chemicals or semi-bleached krafts.

Send for literature on the new BECCO Cold Steep Bleaching process or on other uses of BECCO Peroxygen chemicals. BECCO SALES CORPORATION, Sales Agent for BUFFALO ELECTRO-CHEMICAL COMPANY, INC., Buffalo 7, N. Y. • Buffalo • Boston • Charlotte Chicago • New York • Philadelphia

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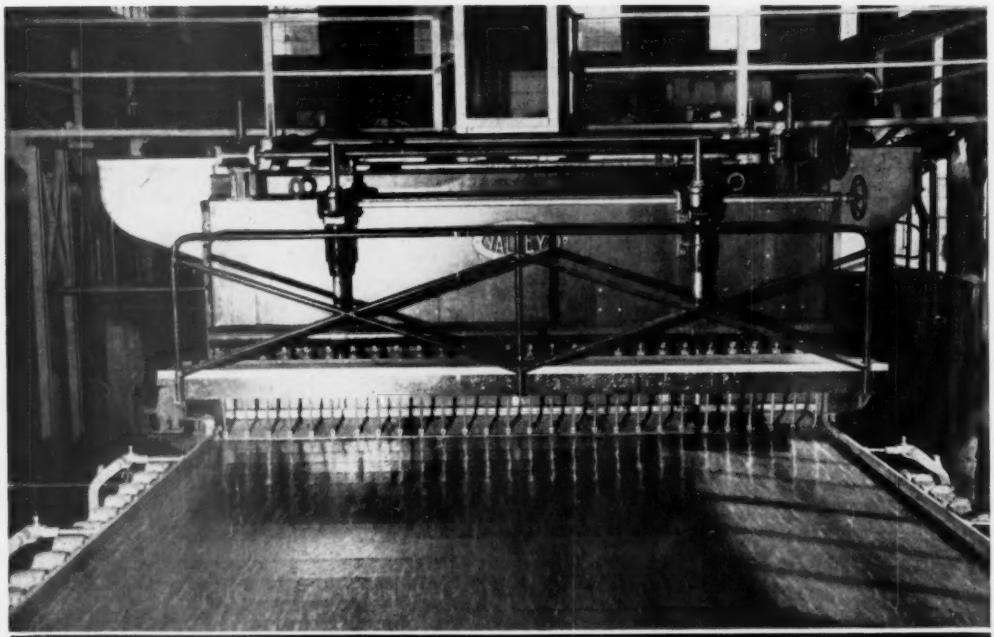
VALLEY INLET

AT THE WEYERHAEUSER MILL

Springfield, Oregon



On more and more paper machines it's INLET and HEADBOX by . . . **VALLEY**

Send us your inquiry regarding improving **your** inlet and headbox equipment.

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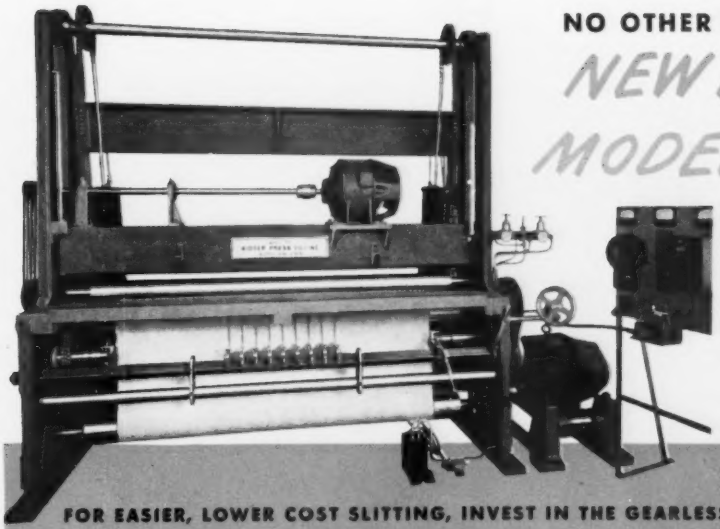

NO OTHER SLITTER LIKE IT!

NEW KIDDER MODEL G.T.

HAS NO GEARS...

upkeep greatly reduced!

noise practically abolished!

200-lb. tag stock easily slit!

FOR EASIER, LOWER COST SLITTING, INVEST IN THE GEARLESS KIDDER MODEL G.T.

YOU GET ALL THESE FEATURES:

Replaceable V-belts — no dismantling.

Rotating members (except mill roll shaft) mounted on sealed anti-friction bearings.

Packaged motor drive, including M. G. set. Main motor and mill roll brake on right of machine.

Shear-action cutting. Shaft-mounted, two-edged back cutters, ⅞" wide, driven slightly faster than web. Ball bearing front cutters, rotating by pressure against back cutters, kept sharp by latter's harder metal.

Wound slit webs — either on core or collapsible shaft — in cradle formed by two drums, under pressure from a third above. Two drums main motor driven. Top roll driven by rheostat-controlled auxiliary motor.

Controlled hardness. Varying pressure and speed of top roll assembly heavy enough to wind hardest roll. Pneumatic cylinder provides counterbalance from zero to complete lift.

Web tension provided by water-cooled, rotating-disc brake. A mechanical uniform constant tension device is also available.

Wrinkle-smoothing bow bar handles baggy stock. Adjustable to any angle, can press web's center or edges, combining with mill rolls' bias adjustment to keep web straight and taut.

Model G.T. Gearless Slitter comes in 42", 54", 65", 74", 84", 94" width trims; 1000 to 1500 fpm speeds — Kidder engineers will recommend motors of correct capacity. Standard Model: 26" rewind roll; Special Model: 40" rewind roll.

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Gentlemen:
Please send me complete information on the quieter, smoother-working, cost-reducing Kidder Model G. T. Slitter. I understand this will be sent at no cost or obligation to me.

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Company .....
City ..... Zone ..... State .....
Materials to be slit (attach sample) .....
Narrowest cut ..... Finished roll dia. .....

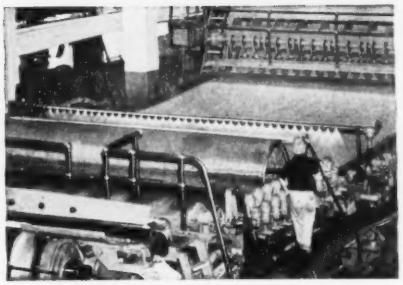
*Once you adopt NOPCO KFS**

Yes, when you rely upon Nopco's newly-developed KFS to improve processing and manufacturing conditions, it's the "end of the act" so far as foam is concerned... the end of the highly undesirable role it plays in pulp and paper mill. For Nopco KFS is an exceptionally efficient defoamer – able to eliminate obstinate foam conditions within a matter of minutes.

Stable to chemicals such as alum and chlorine, and to hard water, KFS provides extremely effective control at every stage in pulp and paper making where foam needs to be destroyed. For instance: KFS added to effluents from pulp mill and bleach plant cuts foam to negligible proportions – making disposal of waste liquors easy; added to stock in the paper mill, preceding any point where foaming occurs, it prevents foam development – thus assuring better fibre dispersal, reduced breaks, and improved sheet formation.

Nopco KFS is easily made into a stable emulsion by simply agitating with a paddle. Why not order enough for a trial run? You'll find KFS will do a real job of foam elimination, no matter how great the volume or speed of your production.

Send for free bulletin entitled "Nopco KF * Series – Dispersing Agents for Improving Sheet Formation".



AN EFFECTIVE APPLICATION OF NOPCO KFS is seen in this battery of mist-type nozzles set up across the wire. A dilution of 1/10 of 1% KFS is sprayed through the nozzles onto the stock. This prevents foam formation on the wire, and reduces surface tension of water in the stock.

Result: No excessive volume of water falling back from the high speed dandy roll to disturb fibre formation, and no sticking of the sheet to the first bare roll.

*Reg. U. S. Pat. Off.

NOPCO
EVOLVED THRU RESEARCH

NOPCO CHEMICAL COMPANY
HARRISON, NEW JERSEY
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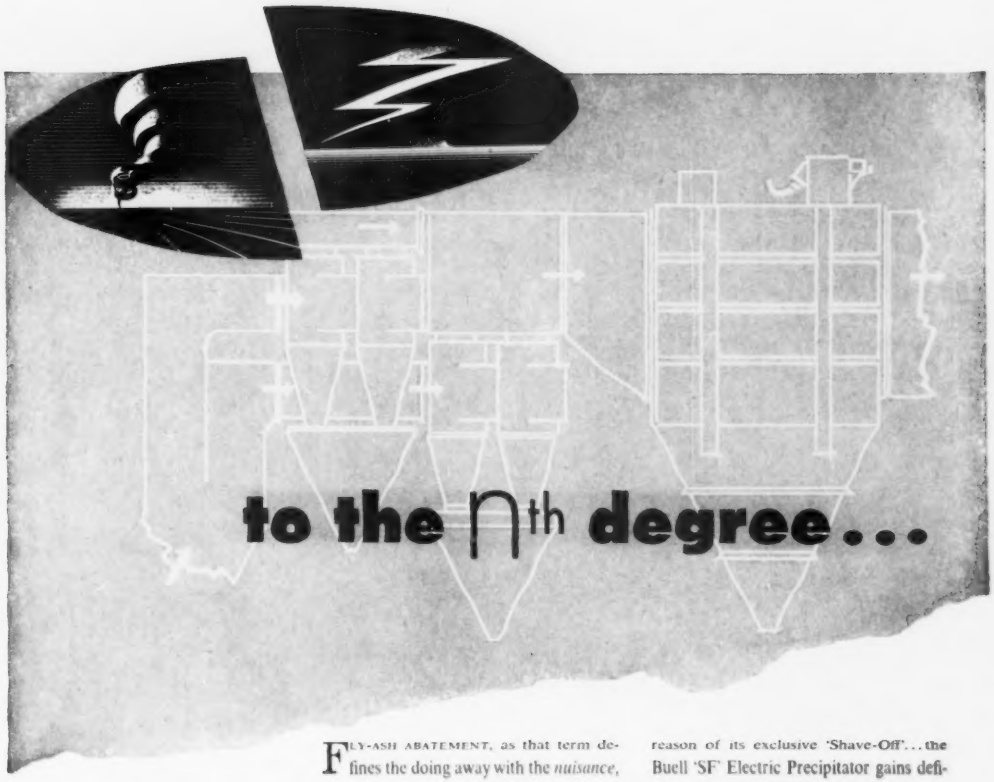
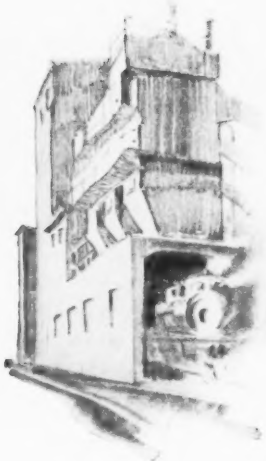


to the nth degree...

FLY-ASH ABATEMENT, as that term defines the doing away with the *nuisance*, is a call to positive action. What action is most positive, what combination of collectors most trustworthy, stands well proved among engineers—and in the court of public opinion.

Management's purpose to take most positive action is served to the nth degree by a Buell 'SF' Electric Precipitator, in tandem with matching-capacity Buell van Tongeren Cyclones.



To the equipment phase of planning, Buell today offers designs based on world experience in both Precipitator and Cyclone dust collection. The Buell van Tongeren Cyclone excels in practical effectiveness by reason of its exclusive 'Shave-Off'... the Buell 'SF' Electric Precipitator gains definite operating advantage through such design features as StediFlow dust-fall.

To the engineering of such an installation, Buell brings the broadest consulting experience in high-efficiency dust collection—and a notable forth-rightness in predicating operating guarantees on attainable fractional efficiencies.

Buell engineers will welcome the opportunity to confer on basic problems or on the details of equipment. Literature for preliminary study on the collection of nuisance dust on request. Write Buell Engineering Company, 70 Pine Street, Suite 5027, New York 5, N. Y.

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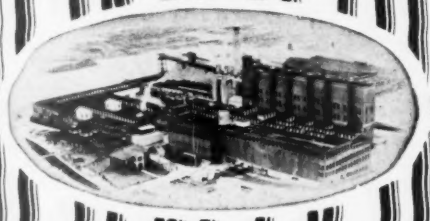
Engineered Efficiency in **Dust Collection**

SOUNDVIEW



High Grade

BLEACHED SULPHITE PULP

SOUNDVIEW PULP COMPANY

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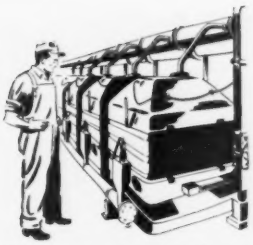

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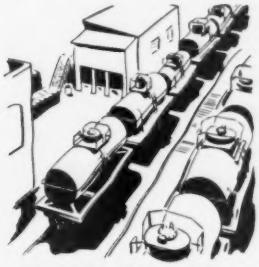
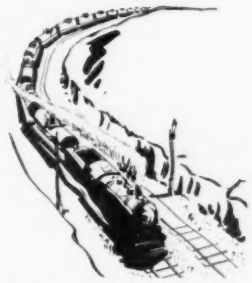


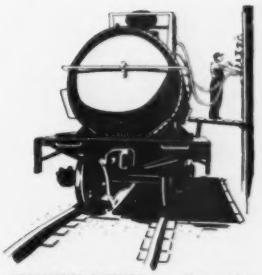
PACKAGING . . . Hooker Chlorine and Caustic Soda are shipped in specially conditioned tank cars, carefully inspected before shipment to guard against leakage and give you trouble-free, safe unloading.



DELIVERY . . . Schedules are planned to meet your production needs. Shipments are checked from point to point en route to insure compliance with delivery schedules.

You Get More than Chemicals When You Buy from *HOOKER*

SERVICE is one of the most active ingredients in Hooker Chemicals. Hooker is a compact, flexible organization of experienced people, geared to serve your needs quickly and competently. Briefly, these are the "added dimensions" that follow the shipment into your plant, helping you make the most of the Hooker Chemicals you buy.



TECHNICAL SERVICE . . . offers assistance on problems of unloading, handling, and processing to enable you to use Hooker Chemicals most efficiently, economically and safely.

MODERN RESEARCH . . . backed by years of experience serving the pulp and paper industries, works constantly to find better ways of producing chlorine and caustic soda for paper making.

SEND FOR THIS HELPFUL DATA ON BLEACHING

BULLETIN NO.

201 Process and Equipment for Making Bleach Liquor for Use Without Settling

211 Chemistry of Bleaching Chemical Wood Pulps

214 What Do We Know About Bleaching?

236 Importance of pH and Catalysts in Bleaching Operations

242 Production and Use of Unsettled Bleach Liquor

243 Procedures and Brightness Grades in Bleaching Sulfate Pulps

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Perkins Calender Rolls—the natural result of the longest and broadest experience in the industry—give quality that is definitely reflected in your product. Perkins service includes refills of any make of calender rolls.

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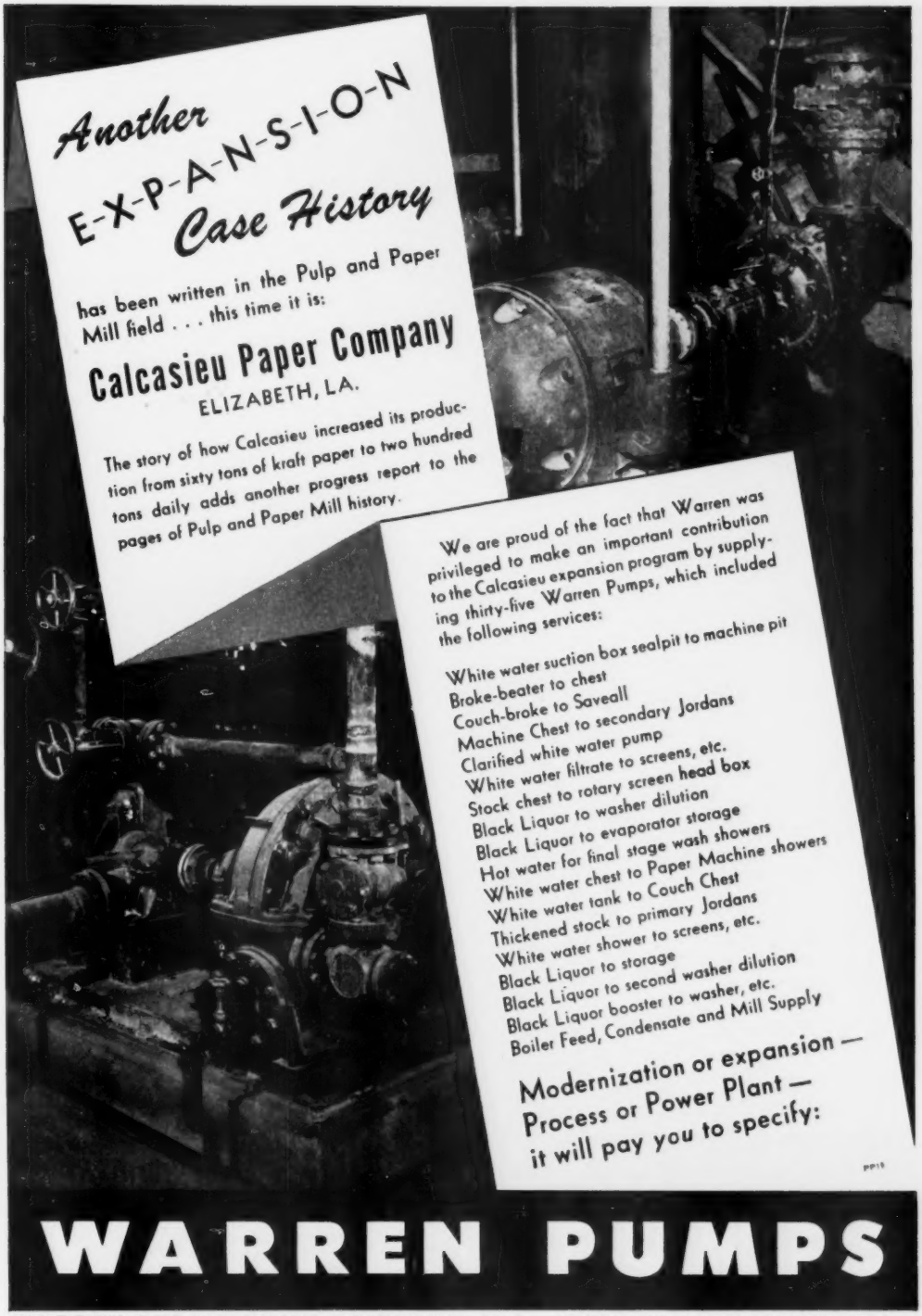


Another E-X-P-A-N-S-I-O-N *Case History*

has been written in the Pulp and Paper Mill field . . . this time it is:

Calcasieu Paper Company

ELIZABETH, LA.

The story of how Calcasieu increased its production from sixty tons of kraft paper to two hundred tons daily adds another progress report to the pages of Pulp and Paper Mill history.

We are proud of the fact that Warren was privileged to make an important contribution to the Calcasieu expansion program by supplying thirty-five Warren Pumps, which included the following services:

White water suction box sealpit to machine pit
Broke-beater to chest
Couch-broke to Saveall
Machine Chest to secondary Jordans
Clarified white water pump
White water filtrate to screens, etc.
Stock chest to rotary screen head box
Black Liquor to washer dilution
Black Liquor to evaporator storage
Hot water for final stage wash showers
White water chest to Paper Machine showers
White water tank to Couch Chest
Thickened stock to primary Jordans
White water shower to screens, etc.
Black Liquor to storage
Black Liquor to second washer dilution
Black Liquor booster to washer, etc.
Boiler Feed, Condensate and Mill Supply

Modernization or expansion — Process or Power Plant — it will pay you to specify:

PP15

WARREN PUMPS

WARREN STEAM PUMP COMPANY, INC., WARREN MASSACHUSETTS

Announcing

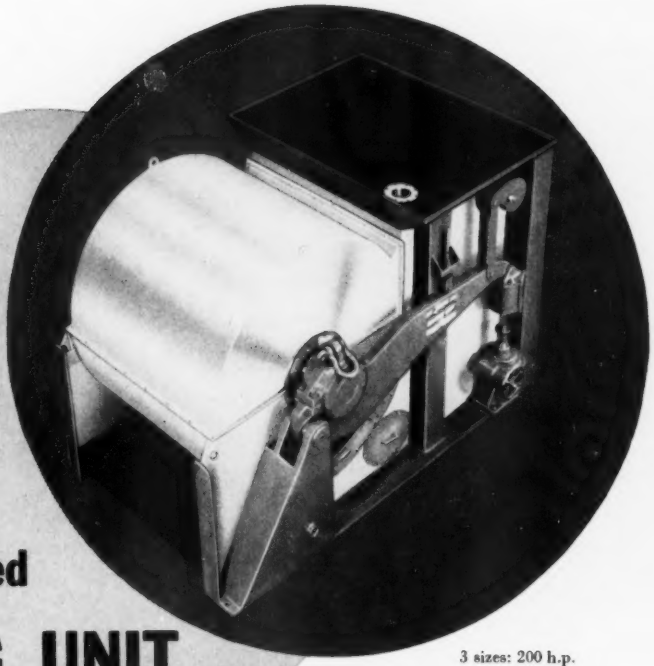
E.D. Jones

completely

pre-assembled

BEATING UNIT

(patent applied for)



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300 h.p.
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Here's a revolutionary new beater — a complete, packaged Beating Unit — as simple to install as a Jordan.

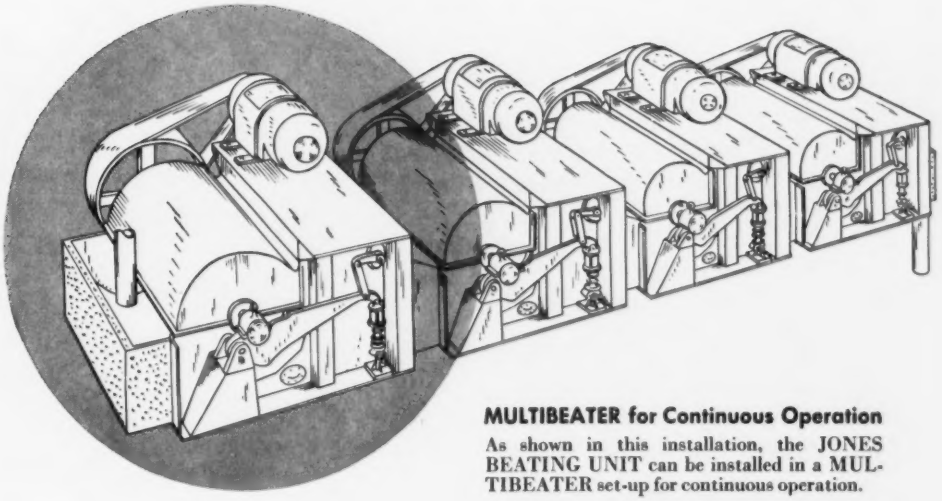
Backed by the engineering skill and experience that has produced over 150 Jones-Bertrams Patent Beaters, the new Jones Beating Unit embodies features never before incorporated on one machine . . . produces *better quality* — more *uniformly refined fibre* — at the *lowest cost per installed horsepower* — *lowest cost per unit of refining capacity.*

Proved mechanical design, roll and bed plates incorporating the best features of the Jones-Bertram Beater, and positive control of roll pressures, mean *more positive treatment* of stock — no possibility of untreated stock passing through the unit.

WRITE TODAY for details, or ask your Jones representative.

- ★ **Lower in cost — up to 65% power savings over conventional beaters**
- ★ **More refining capacity — up to twice as much as any similar machine**
- ★ **More flexibility of operation**
- ★ **Fully automatic control**
- ★ **Proved mechanical design**
- ★ **Lower installation cost — no assembly in the mill**
- ★ **Simpler floor construction — minimum floor loads, no shifting loads**
- ★ **Requires less floor space — motor support is an integral part of the unit**
- ★ **Lower maintenance — completely non-corrosive where exposed to stock**

E.D. Jones **E. D. JONES AND**



MULTIBEATER for Continuous Operation

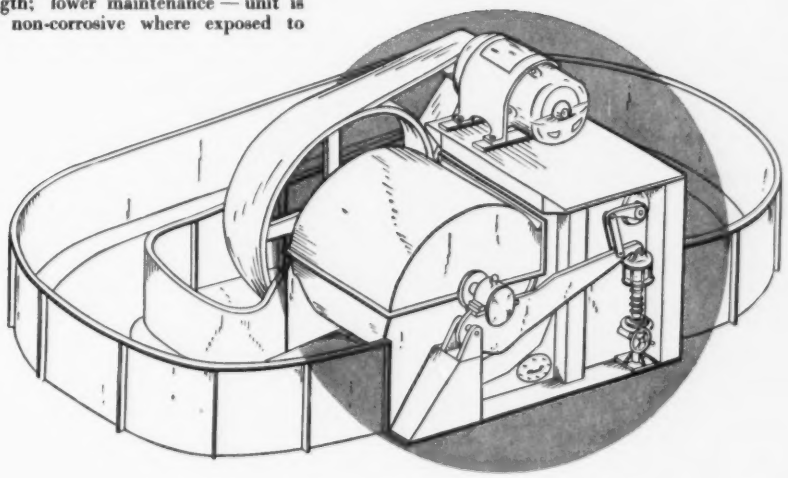
As shown in this installation, the JONES BEATING UNIT can be installed in a MULTIBEATER set-up for continuous operation.

POSITIVE TREATMENT: Jones-Bertrams-type roll and bed plates with positive control of roll pressures and re-circulation make it impossible for untreated stock to pass through the unit.

COMPLETE FLEXIBILITY: any roll can be by-passed if desirable (in case of accident, etc.,) without shutting down the MULTIBEATER.

TUB INSTALLATION for Batch Beating

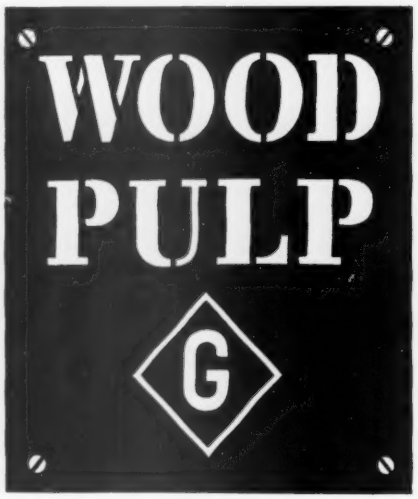
The JONES BEATING UNIT also offers special advantages for conventional tub installation: low installation cost — complete unit comes ready for installation with no assembly necessary at mill; floor space savings — motor support is right on the beating unit; greater rigidity and accuracy — because of the short spindle length; lower maintenance — unit is completely non-corrosive where exposed to stock.



SONS COMPANY, PITTSFIELD, MASSACHUSETTS

BUILDERS OF QUALITY STOCK PREPARATION MACHINERY

Established 1886



"Today is what yesterday made it."
ANON

This adage aptly applies in the industrial world.

The Pulp and Paper Industry is no more and no less than the years have made it. It is the sum total of all the experience and technical "know how" it has amassed. It is a composite of management and personnel, facilities and resources.

Even as today's knowledge is based on lessons learned yesterday, so will tomorrow's wonderful new products follow from today's research.

★

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— INCORPORATED —
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PULP & PAPER
"The Cellulose Age"
PRODUCTION AND MANAGEMENT JOURNAL OF THE NORTH AMERICAN PULP AND PAPER INDUSTRY

A MILLER FREEMAN PUBLICATION

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Words Ralph Hayward Left Behind

All industry—not just the pulp and paper industry—lost one of its authentic geniuses when Ralph Allington Hayward passed on. A comparatively young man—just 55—his brilliant mind was capable of encompassing many activities at once.

The results of his work are not only reflected in the growth of Kalamazoo Vegetable Parchment Co. now one of the leading operations in this industry with seven plants in all. It is reflected in the remarkable community of Parchment in Michigan; in the University of Michigan where he was once a teacher, in the end a regent; in government and politics, in which he was a leader; in industry affairs at large, and in many other affairs.

We recall words of his which might well be recalled now. For instance:

"*Competition* for jobs is important. This company grew great because a man could succeed in proportion to his ability. If we ever stifle this freedom, we stifle the country. The great men of this nation were great because of their ability, not because of their position in seniority lists. Competition makes people strong, makes nations great. . . .

"One of the most vicious popular misconceptions today is that prejudiced idea that there is something sinful about a company making a profit. . . . If this company didn't make a profit and use it for reinvestment in the company, not a one of you would be here and KVP would still be housed in its original structure, instead of being the large company it is today.

"The *spirit* of its people is the most valuable asset of a company. This intangible asset is not measured in machinery or on the balance sheet, but it is the actuating force that makes the company great. . . . (Comparing service and loyalty to radioactivity): If you have radioactive people in your organization, you have *power unlimited*."

We Need Big Companies Today

The tasks which this country may be required to assume will strain to the utmost the capacity of all the nation's production facilities, large as it is. A company, and business in the aggregate, must be big enough for the job to be done. On this basis, it is doubtful whether many of our industrial enterprises are as large as they should be.

No one can truthfully deny that without the benefits of mass production and the technological advances by large corporations our standard of living would be lower and the security of our people would be less. The issue is not big business as against small business. It is rather how best to meet the needs of our society under conditions as they exist today. The effort to increase political popularity through attack on companies because of size is a disservice to all our people.

Society needs protection against the giant in whatever form, where that giant does not accept social responsibilities and meet them in the day by day carry-on. This responsibility extends to all society. In my opinion, recent years have proven large corporations generally have gone further in meeting their social responsibilities than have smaller companies. I believe that currently this is true. In providing better working conditions, greater security, and in endeavoring to meet the material and social needs of their employees, stockholders and communities, they have led and are now leading the way.—Wm. B. Given, Jr., President of American Brake Shoe Co.

Paper . . .

I bear the mighty record of the years—
Man's glory, his wisdom, and his shame;
I hold his joys, his anguish, and his fears,
Exploit his folly, hallowed keep his fame.
I guard, until the worms of time shall win,
The thoughts that make men puny mortal things,
And thoughts that make men more than ever kin
Unto their gods, in giving others wings.
The word might live, but ears forget erelong,
And eyes lose visions, once etched clear and keen.
I hold the mem'ry of a lovely song!
I hold the sunshine of a vanished scene!
Revealing men as saints, as seers or knaves,
I bear their thoughts beyond their lonely graves.

—CATHLEEN KEEGAN.

Harry E. Weston, "Professor Pulp & Paper" and the hard-working secretary of the Superintendents' Association, sent us the above poem.

He wrote that the late Miss Keegan composed the poem in 1937. But, except as a separate print by her employer, Edgar Steiner & Co., it was not published until Sept., 1949, when it appeared in Inland Printer.

IN THIS ISSUE—

First of a Series of Four Articles on the Pulpwood Operations of International Paper Co. in the South (shown on Cover Picture) begins in our Pulp Wood Section ..... Page 46

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THE SULFUR CRISIS

POTENTIALLY PLENTY FOR MANY YEARS

LEFT TO RIGHT: FRANK L. MITCHELL, Gen. Mgr., Canadian Pulp & Paper Assn., W. H. SWANSON, Chief of Pulp Division, Kimberly-Clark, who expressed views on sulfur crisis; and SID WILLIAMS, Resident Mgr., St. Lawrence Mills, Three Rivers, whose use of pyrites is described.

As this issue went to press, a sulfur crisis had gripped the sulfite industry but there was hope for government cooperation in developing new sources. Emergency meetings were the order of the day all the way from Washington and Montreal to Pacific Coast cities.

PULP & PAPER editors made an informal industry survey from coast to coast in search of any and all useful authoritative information possible to obtain for coping with the critical shortage and have come up with these general conclusions:

Opening up of new sources for sulfur; with equipment for handling it, seemed the best practical solution. This may be in a Rocky Mountain state.

Substitution of pyrites was favored but presented many problems in mining and refinement processes. But equipment firms are ready to go into action. Although pyrites are plentiful, in nearly all regions and close to many mills, deposits are of varying quality. Pyrites use would not require stainless steel.

By-products of smelters and liquefied SO_2 hardly seems adequate and more difficulties may be encountered.

There is a very wide variation in the useage of sulfur by mills—in the U.S. it ranges all the way from 133 lbs. per ton of pulp, where waste liquor is burned and chemicals recovered, to 343 lbs. per ton of pulp in some high alpha dissolving pulp mills. This is not so surprising, however, in view of variations in yields, in process and product and strict physical and financial limits on what mills can do. Although there are several possible ways of recovering sulfur for re-use, and many mills are able to use one or more of these methods, there are *no new known ways*. In most mills, useage ranges from 200 to 275 lbs. per ton of pulp.

The Canadian industry took steps at the recent Montreal dominion-wide meeting to meet the situation by seeking new sources and improving mill efficiency. On the U.S. side of the border, it was a prime subject as Paper Week groups gathered in New York, and some companies called emergency sessions. It all started when the sulfur producers were obliged to cut back their sales to industry to 15% to 20% of last year's volume use. There were some protests against continued shipment of sulfur abroad and of uses of sulfur for such purposes as fertilizer, or where other chemicals or materials might be used. But food, on the other hand, rated as essential as pulp.

Sulfur Recoveries

Ways in which mills recover sulfur "cost" time as well as equipment, and are in some cases limited to certain types of operations. They are:

1. Blowing down at lower pressure and washing out pulp.
2. Obtaining circulation during blowdown period.
3. Recovering SO_2 in blowdown gases. (Soundview Pulp Co. process described in PULP & PAPER, Jan. 1949 issue; reprints on request.)
4. Stripping SO_2 from waste liquor where liquor is used for alcohol or by-product.
5. Recovering sulfur from burning of liquor. Rare, and involves large investments.

It was suggested by some operators that in certain cases mills may save sulfur by more efficient operation of existing equipment. For instance, forcing of burners may lead to losses as sublimed sulfur; inadequate acid tower absorption capacity may lead to stack losses; insufficient time to blowdown digesters may lose sulfur normally recovered.

The Nov. 1950 issue of Industrial Engineering & Chemistry published by the American Chemical Society at Easton, Pa., was attracting a great deal of interest in mills because of much information gathered on sulfur. An unusual article by W. T. Lundy told of forms and places in which sulfur is found. He wrote, of course, of the Texas and Louisiana deposits; also of Italy and Sicily and volcanic types found in many countries. World-wide occurrences of pyrites were discussed. An increase of industrial sulfur by-product was forecast. Known and potential sources were described as sufficient to meet world needs for many years.

Montreal Discussions

Among participants in Montreal discussions were W. H. Swanson, chief of staff for pulp, Kimberly-Clark Corp.; Nash Edwards, formerly of International Paper Co. J. C. Benny, Diamond Match Co., and chairman of the sulfite committee, technical section presided. Among the Canadian contributors to the session were Dr. Lincoln Thiesmeyer, president of Pulp and Paper Research Institute, and F. L. Mitchell, general manager of the association.

Carl Jentz, general superintendent, St. Lawrence Paper Mills, Three Rivers, Que., told PULP & PAPER how this mill, the only big sulfite pulp producer on the continent using pyrites exclusively, has already demonstrated the effectiveness of this technique.

Mincing no words, Mr. Mitchell warned the mill operators not to depend on false hopes that the problem would somehow solve itself. The plain fact was that all through 1950 the Canadian sulfite pulp industry had been using sulfur at a faster rate than it was getting delivery. There had been an actual shortage of 35,000 tons and this had crept up on the mills without the operators realizing it.

"The inventory we took as of Jan. 1 in Canada indicated that the mills would have enough sulfur to tide them over until the fall, but that the pinch would come then," stated Mr. Mitchell, reporting on a survey recently completed by the association's committee of top-flight sulfite mill operators. "There are indications that the present sources of sulfur will be exhausted in 15 to 20 years. That means we have got to look for new sources as well as try to figure out means of economizing with our present supply. And we can be pretty sure that those new sources won't be developed until we begin to feel the shortage next fall. But it's time that mills took steps to economize in their burning process, make their recovery more effective, conserve their waste gases and give more attention to high-yield sulfite production."

One of the upshots of the discussion was that the sulfite committee will send out questionnaires to all sulfite mills seeking practical suggestions.

Views of Swanson and Edwards

"If we can assume that we are now using sulfur most efficiently for quality and quantity of production, there's only one answer, and that is reduce production," said Mr. Swanson. "However, it's a question whether the industry as a whole can make such an assumption with authority. Many mills are probably using

more sulfur than necessary because of inefficiency in operation."

Mr. Edwards, now a consultant on sulfite mill operation, said that he wasn't sure of the proportions in Canada, but at least one third of the U.S. sulfite mills used 250 or more pounds of sulfur for the production of one ton of pulp, and quite a few used 275 pounds. Actually, the range was from 133 pounds to the ton to 343 lbs., and he felt sure that there could be important saving in sulfur consumption without disturbing quality or quantity of output.

Mr. Mitchell said that the overall average consumption of sulfur in Canada's sulfite mills was 272 pounds per ton. Percentage use was much higher today than during the war, and he wondered why. Probably it was because all mills were pushing their production to the limit.

Prospective Canadian Sources

Mr. Mitchell listed the following as prospective Canadian sulfur sources: 1. Pyrites ores; 2. Liquefied SO_2 from the International Nickel Co.'s mines at Copper Cliff, Ont.; 3. Purification of Alberta's gas and oil deposits; 4. Materials such as gypsum and others under investigation by the Research Institute.

Horace Freeman, research director for Consolidated Paper Corp., thought the industry's best bet was in utilization of pyrites ores, which, as one advantage, could be delivered to most of the mills at much lower cost by rail than other suggested materials. He thought the job called for more co-operation between the mining and pulp industries than had been shown in the past.

Guy Minard, Kimberly-Clark manager at Kapuskasing, thought that there should be some form of industry allocation; otherwise there wouldn't be much incentive for economy in sulfur used by individual mills. Dr. Thiesmeyer felt, however, that even more important than allocation of sulfur would be free circulation of data on how to reduce sulfur use.

Pyrites at Three Rivers

It wasn't mentioned at the formal session, but at Three Rivers, the important St. Lawrence mill, producing about 110 tons a day, has been using pyrites exclusively at the rate of about 20 tons a day—and doing very well, according to Superintendent Jentz.

"We buy no sulfur at all," Mr. Jentz told PULP & PAPER. "The 20 tons of pyrites which we get from the Waite-Amulet mine, a Noranda subsidiary, is roughly the equivalent of 11 long tons of sulfur. The ore runs to about 47 to 48% sulfur. The ore is ground at the mine in the flotation process and dried before shipment to us as a bulk commodity and therefore at a pretty low freight rate. We use the flash roasting process, the concentrate being burned in suspension, and we figure that we save about $2 per ton of sulfite pulp, thanks partly to our saving in steam."

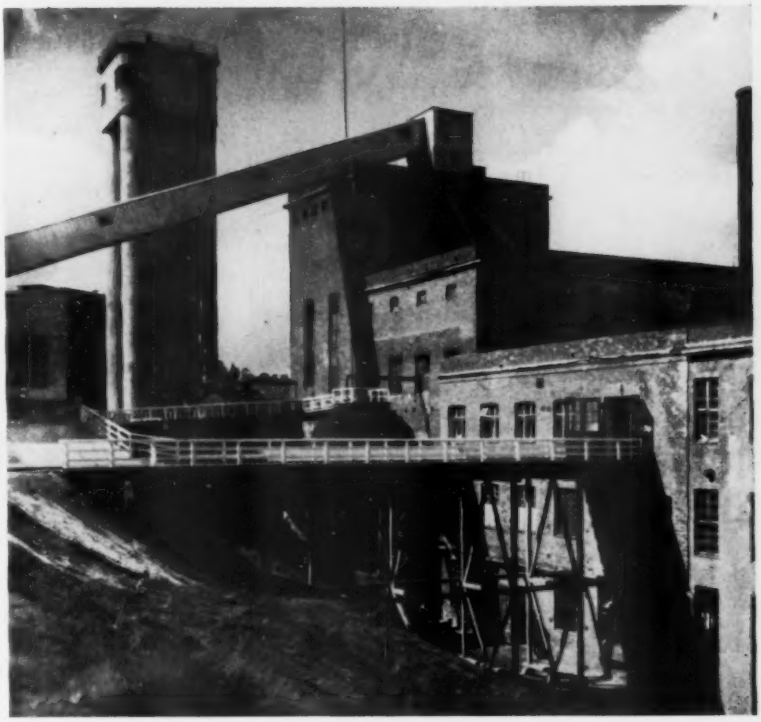
Liquefied SO_2 delivered to Three Rivers costs about $200 a ton; elemental bulk sulfur about $36.

Nichols Plant Is Used

Nichols Engineering Co., New York, installed most of the pyrites treatment facilities at Three Rivers, and there have been few changes in the original layout.

Some mill men in eastern Canada suggest that before any attempt is made to utilize pyrites on a large scale, Finnish experts should be consulted. Every sulfite mill in Finland, they say, uses pyrites exclusively. So, PULP & PAPER interviewed Finnish visitors for the following report:

HOW FINNS UTILIZE PYRITES



KYMMENE, FINLAND, Sulfite Pulp Mill, whose use of pyrites instead of sulfur is described. The pyrites burners are on the left behind the acid towers. The mill uses a German formula and the precipitators are made of lead.

FINNISH REPORT

B. SUCKSDORFF, of Finnish Paper Engineers Assn., who described use of pyrites in place of sulfur in Finland.

In seeking a solution of the current problem of sulfur shortage, North American mills may borrow profitably from the experience of Finland, where nearly all the operating sulfite mills use pyrites exclusively as a source of this necessary material.

In Montreal a few days ago a PULP & PAPER editor discussed the situation with Bjorn Sucksdorff, head of the technical department of Kymmene Aktiebolag, largest wood-using industry in Finland, and Peh-Gustaf Michelsson, sulfite mill superintendent of the same company, whose two big sulfite mills at Kuusankoski produce 350 tons of sulfite pulp daily.

There are about twelve sulfite pulp mills in Finland and all but two are using pyrites as a source of sulfur, reports Mr. Sucksdorff, whose own company is with the majority. Most of the pyrites is obtained from a state-owned mine in Finland. Before the war, most of the mills Italy, Norway and the U.S., but the change-over to pyrites was dictated by shipping and other difficulties during World War II and since then, even though sulfur was obtainable from traditional sources, the mills have stayed with the pyrite processes because they have found them about 20% cheaper.

Pyrites is burned in the Finnish mills either by the Nichols-Freeman or Lurgi (German) formula. In the former process pyrite arriving at the mill is dried and then burned in water-tube boilers, being sprayed into the chamber like powdered coal in a furnace. The gases are quickly cooled through water tubes, and it is estimated that about 72 tons of steam are

(Continued on Page 95)

NEWS IN BRIEF • • • AND BULLETINS

CANADIAN FOREST PRODUCTS TAKES OVER SORG PULP

Confirming first reports published here last month, Canadian Forest Products Ltd., of Vancouver, B.C., one of the biggest western logging and lumber companies in the West, headed by J. G. Prentice, has purchased majority ownership in Sorg Pulp Co., and will re-open the kraft pulp mill at Port Mellon, B.C., about May 1. Sorg Paper Co. and Perkins-Goodwin Co. are minority owners. Chips from CFP sawmills probably will augment wood supplies and new equipment will be purchased.

RECORD PAPER AND NEWSPRINT PRODUCTION IN 1950

A new high in paper production in the U. S. was recorded in 1950—an estimated 24,250,000 tons, which is 10% above the 1948 record and 19% above 1949, according to the APPA. Apparent per capita consumption in the U. S. rose to 380 lbs. in 1950, compared with 356 in 1948 and 331 in 1949. Total North American production of newsprint also reached an all-time high in 1950 of 6,282,182 tons, of which 5,278,585 were made in Canada; 1,003,597 in U. S., according to the Newsprint Service Bureau. This was a total increase of 3.4% over 1949, a record year (11.6% up in U. S.; 2% in Canada).

ALSO NEW RECORD SET FOR U. S. RAYON PRODUCTION

U. S. production of rayon in 1950 was 1,259,400,000 lbs., an all-time record, 27% over 1949 and 12% over the previous record in 1948, according to Rayon Organon, organ of the Textile Economics Bureau, Inc. In 1950 rayon was being made at 3½ times the 1939 prewar rate. World rayon production also hit an all-time high in 1950 of an estimated 3,500,000 lbs., compared to a previous world high of 2,704,000,000 lbs. in 1949, and 2,812,000,000 in 1941. As raw material for rayon, wood pulp was being used in a 75-25 ration over cotton linters in 1949.

MOBILE PAPER MILL SOLD TO TWO JOINT OWNERS

Transfer of half interest in the fixed assets of the Mobile Paper Mill Co., Crichton, Ala., to Seaboard Container Corp., Bristol, Pa., has been effected by Stone Container Corp., Chicago, Ill. The Mobile (Ala.) mill is being operated by them as a joint enterprise under title of Stone-Mann Paper Co. Marvin N. Stone, head of the Chicago company, is general manager; Yale Mann, of Seaboard, is assistant general manager. John Price is superintendent.

OLIN CELLOPHANE PLANT TO START IN SEPTEMBER

Olin Industries new cellophane plant being built at the Olin-Ecusta Paper operations at Pisgah Forest, N.C., is to start up in September with 8 machines making 33 million pounds of cellophane annually.

EVERETT PULP & PAPER DEFERS NEW MACHINE

Because of the changed international and raw materials situations and other developments, Everett Pulp & Paper Co., Lowell, Wash., has deferred the plans it had previously announced for addition of another paper machine but will go ahead with plans for expansion and improvement of existing equipment, according to Anson B. Moody, vice president.

NEW MACHINES FOR VIRGINIA AND AUSTRIA

A big new board machine exceeding 200 inches in width has been ordered for the Hummell-Ross division of Continental Can Co., Hopewell, Va., and is to be made by Bagley & Sewall Co. That company is going ahead with orders for two paper machines for two of the three new mills in Austria to be built with assistance of ECA and with FAO of the United Nations supplying technical assistance. J. O. Ross Engineering announced it has been given an order by Bagley & Sewall for a hood and air system for an Austrian mill.

FOUNDATIONS IN FOR RIEGEL MILL

Foundations were being completed last month for the new pulp mill being built by Riegel Paper Corp. at Acme, N.C., with possible provision also for a paper mill. Erection of steel superstructure was underway.

STEVENS POINT MILL IS LEASED TO N. Y. FIRM

John Strange Paper Co., Menasha, Wis., has leased Stevens Point Pulp & Paper Co., Stevens Point, Wis., to Jay Corp. of New York, which expects to have the mill making kraft pulp by May. Gerald Shipman, Jay president, said a pulp dryer and other new equipment would be bought.

CELANESE PLANS CONVERTING PLANT FOR PULP

Celanese Corp. of America, now completing a new pulp mill near Prince Rupert, Canada, plans a cellulose acetate plant near Edmonton, Alberta, under the name, Canadian Chemical Co., to use this pulp and also make chemicals not now produced in Canada, such as made at Bishop, Tex.

SCOTT BUYS OCONTO FALLS MILL

Scott Paper Co., Chester, Pa., has acquired all outstanding stock of Falls Paper & Power Co., of Oconto Falls, Wis. Scott issued 30,000 of its common shares in exchange for the stock. Falls has capacities for bleached sulfite pulp of approximately 80 tons per day and 30 tons of groundwood pulp daily. Two small paper machines can be adapted to certain Scott products.

CALENDAR OF MEETINGS

TAPPI SECTIONS AND GROUPS:
- OHIO—Manchester Hotel, Middletown, O.—March 8.
- METROPOLITAN—Fraunces Tavern, New York—March 6.
- EMPIRE STATE, NORTH—Woodruff Hotel, Watertown, N. Y.—March 8.
- LAKE STATES—Stevens Point, Wis.—Mar. 13.
- CHICAGO—Chicago Bar Assn., Chicago—March 19.
- PACIFIC—Longview, Wash.—April 13.

NPTA—Annual Convention, Waldorf-Astoria Hotel, New York—April 2-4.
SUPTS.-TAPPI Joint Meeting—Hotel Harris, Kalamazoo, Mich.—April 5.
COATING MEETING (TAPPI)—Hotel Statler, Boston—April 18-20.
PACKAGING—National Exposition, Auditorium, Atlantic City, N. J.—April 17-20.
NAT. MATERIALS HANDLING Exposition, International Amphitheatre, Chicago—April 30-May 4.
SUPTS.—Southeastern—Jefferson Hotel, Richmond, Va.—May 4-5.
SUPTS.—Northwestern—Radisson Hotel, Minneapolis—May 4-5.
FOREST PRODUCTS Research Society—Convention Hall, Philadelphia—May 7-11.
CPPA Technical Section—Summer meeting—Bigwin Inn, Lake of Bays, Ont.—June 7-9.
SUPTS.—Penn.-N. J.-Del.—Hotel Easton, Easton, Pa.—May 11-12.
ENVELOPE MFGRS. Assn. Annual Convention, White Sulphur Springs, W. Va.—June 17-20.
PAPER & TWINE Assn. Annual Convention, French Lick Springs, Ind.—June 21-23.
SUPTS.—National Convention—Multnomah Hotel, Portland, Ore.—June 24-29.
SUPTS.—N. Y.-Canadian, Saranac Inn, Saranac Lake, N. Y.—Sept. 6-8.
SUPTS.—Northwestern—Northern Holiday Resort, Marenesco, Mich.—Sept. 14-15.
NPTA Fall Convention, Stevens Hotel, Chicago—Oct. 4-6.
SUPTS.—Southern and Southeastern Divs.—Geo. Washington Hotel, Jacksonville, Fla.—Oct 10-12.

SOUTHERN PULPWOOD CONSERVATION ASSOCIATION

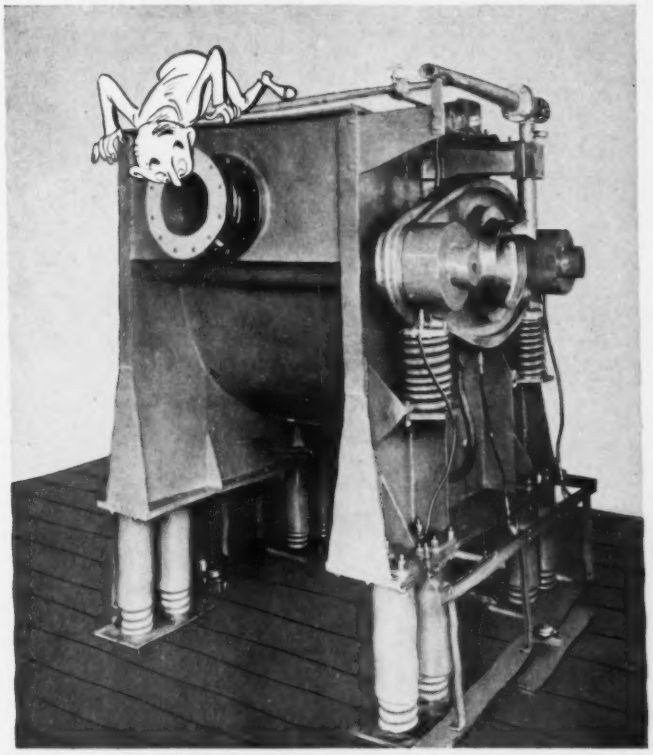
J. H. Kenner of Champion Paper & Fibre Co., Canton, N. C., was elected president of the Southern Pulpwood Conservation Association at its meeting in Atlanta, Ga., in late January. Arthur G. Wakeman, executive vice president and general manager, Coosa River Newsprint Co., succeeded Mr. Kenner as vice president of the association.

Photographs and reports — next issue of PULP & PAPER.

R. W. Wortham, Jr., retiring president from Southland Mills, Lufkin, Tex., presided over the annual meeting, which was attended by 300 representatives of member pulp and paper mills, suppliers of pulpwood, industrial and publicly employed foresters, and others interested in forest conservation.

In evidence this year was a larger representation of Southern bankers than at any previous meeting. Suppliers of pulpwood selling their product to member mills accounted for 22% of the total attendance, which is approximately 55% of the total supplier members of this association. All member mills, with one exception, were represented.

BETTER LOOK INTO THIS...



BIRD *VIBROTOR* SCREEN

for high quality, high capacity screening of pulp

The Bird *Vibrotor* Screen combines vibration and rotation to produce 50 to 80 tons of well screened stock per day, at 1.3 to 1.5% consistency and ⅓ HP or less per ton. Quality of screened stock is uniformly excellent.

Back of the Bird *Vibrotor* Screen is seven years of successful operating experience covering over two hundred installations and handling sulphate and sulphite pulps and certain grades of paper and board.

Back of it also is Bird engineering supervision and service.

Better look into it!

BIRD MACHINE COMPANY
SOUTH WALPOLE • MASSACHUSETTS

MY EXPERIENCE WITH UNIONS

By George Wilson Mead

Recently retired President, Consolidated Water Power & Paper Co.

MANAGEMENT MAN SPEAKS OUT

Although written several years ago, this remarkably frank article has never before been presented to an audience such as this magazine represents. Management men in the pulp and paper industry, from directors down the line to superintendents and foremen, we felt, would find this an instructive and interesting document, although in presenting it here, PULP & PAPER does not necessarily subscribe to any of the views expressed.

There are two reasons why this article, although written in 1928, has come to recent attention. These are (1) the dedication of a new Tri-City Labor Temple in Wisconsin Rapids, largely serving pulp and paper mill employes there and in Nekoosa and Port Edwards, and (2) recent retirement of the author, George W. Mead, from the presidency of Consolidated, turning over the reins to his son, Stanton.

Portions of this article were published in the AFL newspaper Paper Worker in connection with the Labor Temple dedication, but PULP & PAPER felt its entire context should be published for its readers. Permission to do so was obtained from Mr. Mead, and in granting it, he told PULP & PAPER that the views expressed herein are still as up-to-date and as strongly adhered to by himself, his sons and others in Consolidated's management as they were when he wrote them.

This article might be described as a "confession" of a man who was big enough to admit he was wrong.

GEORGE WILSON MEAD (left), Chairman of Consolidated Water Power & Paper Co., the author of this article, became Manager of that company in 1902, President in 1916. He recently retired from the Presidency and was succeeded in that position by his son, Stanton.

JOHN P. BURKE (right), President of the AFL Pulp, Sulfite and Paper Mill Workers, whose appeal to workers to cooperate was recalled by Mr. Mead. Said Mr. Burke: "Give us as good equipment as non-union mill and we'll do a better job."

Nine years ago this spring a union-membership campaign gave the papermakers' union a foothold in our Wisconsin Rapids plant. We were opposed to the union idea, "on principle," as many other manufacturers are. In fact we just about "saw red" at the thought of having our plant unionized.

Why, indeed, should our men want to join with outsiders in organizing against us? We had always treated them fairly; they themselves would be the first to admit it. We had paid good wages and had voluntarily given the men bonuses when war prices had increased our income. Our plant was pleasant to work in. Our hours were reasonable. We had given every proof of our desire to "be square." Or so it seemed to us. Why, then, this business of tying up with an outside union?

My first reaction was to tell the men that if they belonged to a union they couldn't work for me. We had got along without unions for 16 years; we could get along a while longer. We had always been fair; we could continue to be fair, and loyal men would stay with us and others fill the places of the disloyal. Other plants in Wisconsin were not unionized; if they could keep out the unions we could. So we had what union men would call a lockout.

Some of our men came to me in person and told me they wanted to stick with us while the union men were out. We could undoubtedly have continued to operate, especially if we had wanted to employ non-union men from other cities.

But we wanted to be fair to the men who were fair to us. Why brand them to their fellow men, who would undoubtedly be back at work as soon as they had time to think over their unreasonableness? No use causing a permanent split in our ranks.

And then, with the plant idle, I myself had time to cool off and do some thinking. I had reacted on an emotional basis. Now I acted on a basis of reason. Men who had been with us for years were out of work, their families without income. Our mill was idle, our business hazarded if we kept it idle too long. Local merchants and the local community as a whole would suffer while this big slice of its support was cut off. Wasn't there another way out?

It seemed to me that there was. The whose affair—lockout or walkout, whatever you call it—was due to my own personal opposition to unions. Had I, perhaps, carried this opposition farther than was necessary?

The result of my three days' thinking was that I sent word to our men that they could come back if they wished, on these conditions: Any man who wanted to retain his union membership could do so but they must not expect me or the company to recognize or deal with their union. And they all came back.

What Jobs Meant to Them

As I sat in my office that next morning and watched them come walking past my window with eager step and bright eye, talking, laughing, and with never a sign of bitterness or resentment, I gained a new sense of what a man's job means to him. Most of these men had been with us for years; the plant was in a real sense their home. They were just as glad to be back as I was to have them back. And we had gained our real point and lost nothing. So we started work with an "open shop."

But the incident had started our thinking in different lines. Or, rather, we had discovered the vital fact that our prejudices and emotions had at least as much to do with our actions as did calm, constructive reasoning.

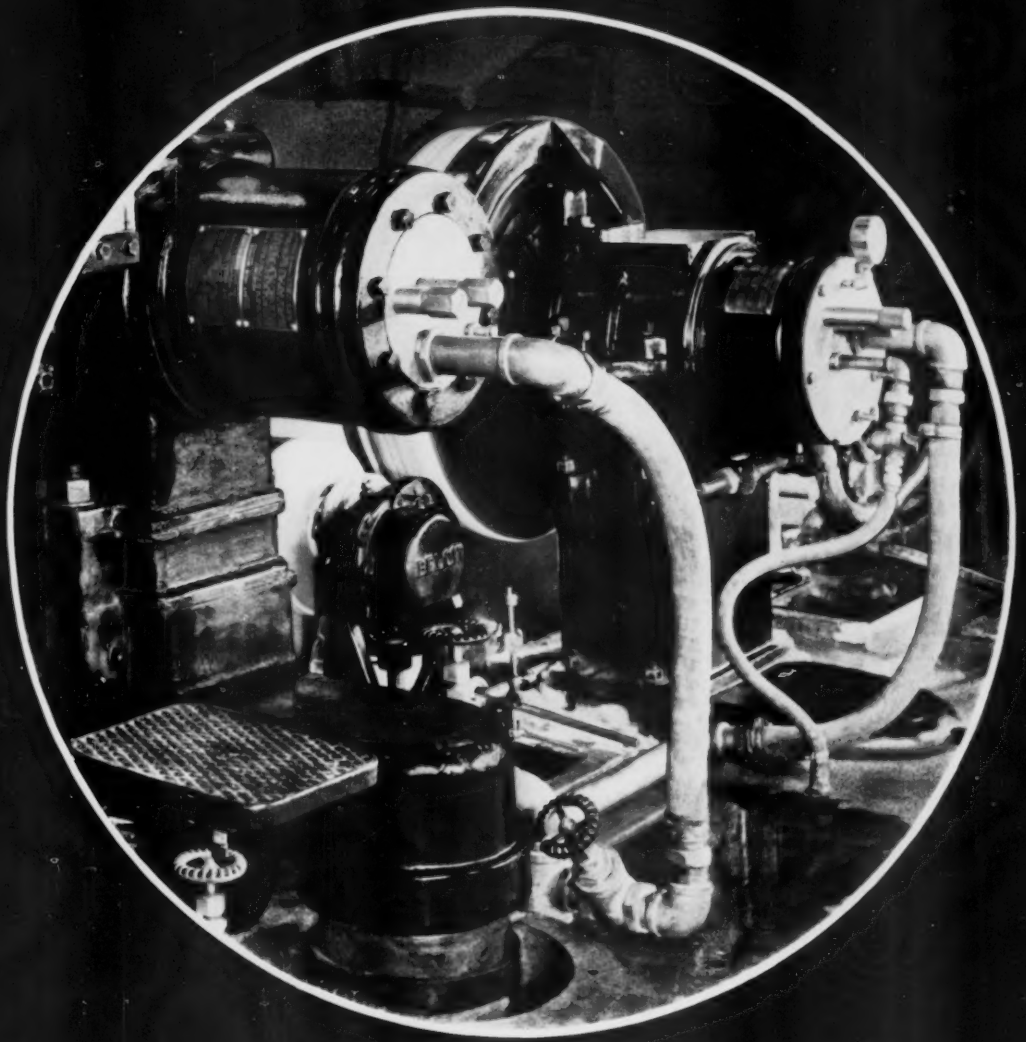
We had been planning to raise wages in the spring. This was in the year 1919. But there were some problems connected with the increase which we in the office could not solve to best advantage by ourselves. For a proper solution we needed certain information that only the men themselves could give to us.

Another thought ran somewhat along these lines. Now that we must have a union here in our plant, is there anything we can do to make it a good union rather than a troublesome one? And have unions good points that we can develop to advantage? If so, what are these points?

Deliberately and independently we began to investigate. We looked into union ideas and principles as we would have looked into a chemical problem in paper making or a problem in developing our supplies of pulpwood.

One of the steps we took was to call in some of the union leaders in the plant, at various times, for questioning. We gave them no encouragement. But we went pretty thoroughly into all the doubts and fears and prejudices that every non-union employer has. And we sought to learn what were the actual aims and ideals of our union men and those of their outside associates and leaders.

The result was that a new viewpoint was presented to us of which we had



Increased Production from Beloit Suction Rolls

Above: a rubber-covered Suction Press (as part of a patented Beloit Dual Press) and a Beloit Suction Couch. Efficient removal of water makes increased machine speed possible. Some Fourdrinier machines profitably use as many as five Beloit Suction Rolls in couch, pick-up, and press positions. Mill managers report increased production with sharply reduced cost of felt and wire per ton of paper.—*Beloit Iron Works.*

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never before been conscious. We found that the union men, although they too were beset by fears and prejudices, had also an unexpected store of well-reasoned plans and aspirations. Above all they exhibited a striking candor and honesty. They talked very frankly about what seemed to them our shortcomings and they were equally unreserved on points more favorable to us and less favorable to them.

We decided, when this stage of inquiry was passed to keep on applying the scientific method to our union-labor relations. Inquiry first, then trial and error. We would see what would happen if we attempted negotiations with the union. And if something reasonably promising resulted, we might give it a year's trial. Our position could be made more difficult by so doing but at least experience and information would be gained that would guide us in shaping our course in the future.

Recalls Signing Agreement

As a result in May 1919 we signed a one year's contract, or "joint labor agreement," with representatives of three unions, The International Brotherhood of Paper Makers; The International Brotherhood of Pulp, Sulfite, and Paper Mill Workers; and the International Brotherhood of Electrical Workers.

The further result is that each of the eight springs since 1919 has seen a new contract based on the experience of the previous year and signed by both parties after fresh negotiations have cleared the atmosphere of any new longings, aspirations, or dissatisfaction on the one side or the other. I don't have to wonder what the average employer who has never made year-to-year contracts with a union thinks of all this. I have talked with too many anti-union employers not to know. And I have been an anti-union employer myself.

"If you encourage union labor, where is it going to stop in its demands?" is the first reaction of the employer to whom the word "union" connotes only "strikes," and "blacklists." "You are putting in the hands of workmen authority that belongs with the management," says another.

"I don't want outsiders telling me how to run my business" is the comment of the employer who has visions of a "walking delegate" coming into his plant and ordering the men to lay down their tools if certain demands of the delegate aren't met. Certainly if our experiment had proved any of these forebodings true we would not have kept on through nine successive contracts.

However our experience indeed has been quite the opposite of what the employer who holds himself in a mood of opposition would expect. Instead of our unions going on and on to bolder and bolder demands they have progressed year by year to a more and more effective cooperation.

The other day I had a visitor who was very much interested in finding out all he could about our union experiences. I asked this visitor to go out into the mill and talk to one of the union leaders. The man he talked to is secretary of the central labor union of our city and carries a card as organizer for the State Labor Federation. His heart and soul are in the labor movement. After their talk in the mill, the union man brought to the other's hotel in the evening a printed copy of a speech made last Labor Day by John P. Burke, the president of the International Brotherhood of Pulp, Sulfite, and Paper Mill Workers. And the corner that he turned down marked this passage:

NEW TRI-CITY LABOR TEMPLE in Wisconsin Rapids, Wis., realization of cherished dream of 17 locals there and in Nekoosa and Port Edwards. Five are Pulp, Sulfite and Paper Workers and Paper Makers locals; several others like electricians include many pulp and paper mill employes.
EZRA MAEDER, Backtender at the Wisconsin Rapids Div., Consolidated Water Power & Paper Co., and member of PM Local 187, was president of an association which solicited funds and purchased the building. Unions occupy second floor, but still operate main floor as bowling alley and tavern.

"Workers Urged to Cooperate"

"Now let me say to you men who are employed by this company here at Wisconsin Rapids that our union mills may, in the years to come, be faced with quite severe competition from those non-union mills paying a low rate of wages. . . . However, I have always contended that if the management in the union mills will give us somewhere near the same equipment we shall not have to fear the competition of non-union mills. Union mills can be run more efficiently because of the greater intelligence of union men and because of the greater team work and cooperation with the management. Therefore, I say to you union men in this audience: Cooperate with the management of the Consolidated Water Power & Paper Co. to the fullest extent. Cooperate so that we may be able to maintain our union scale of wages here and get a little more from year to year. Cooperate to guard the eight-hour day. Cooperate so that you may have full running time. Cooperate so that the union men may be employed."

We feel that this plea for cooperation, coming from the workmen's own representative, is more effective than anything an employer could say or urge.

"Generous—But Often Not Just"

We were fair with our workers before they were unionized, we thought. And we were generous. But were not fair or generous in an arrangement to which they were voluntary parties but only in a way of our own choosing. In other words, we were paternalistic. And paternalism may be generous—which is easy—but it often does not succeed in being just—which is hard.

In this connection it will interest the reader to know that in one of our five plants there is no union. At this plant the men voted on setting up a union arrangement such as we have in Wisconsin Rapids and the vote was 75-25 against it. Our men here asked us whether, since we found the union method so satisfactory here, we wouldn't help them unionize the other plant. To this our answer was that the other mill was in a district not yet unionized and we would be unfair to other employers if we deliberately brought in a union. Besides if the men there did not want a union the union method would not work as well as the plant committee now in effect. It would be unsuccessful for the same reason that

(Continued on Page 93)

"PAPER WEEK" AIRS PROBLEMS

Paper Week visitors to the number of almost two thousand checked out of New York's Waldorf-Astoria and Commodore and nearby hotels the weekend of Feb. 24, their heads whirling with revised outlook data and some of the latest technical information of assistance in the ever accelerating industry mobilization.

If so-called "dry run" allocations are not in force by the time this issue reaches readers, they may be close, if topmost talk at Paper Week is criterion. However, it should be emphasized that the industry in general is against such "test allocations" as recommended unofficially by government officials and favors a safe, sane, and slow approach to the crystallized eventuality.

As might be expected, allocations and price controls were foremost in the side talk at the annual convention, but they were also the prime subject of several scheduled meetings of the closed variety under auspices of APPA and affiliates at the Waldorf. Pulp men particularly had readied for Paper Week sessions full pictures of realities and possibilities in connection with both. While price controls were nominally in effect late in February, the conclave discussions centered around "world" allocation and price control which of course refers to Western powers.

World price and allocation (Western powers) was forecast in PULP & PAPER six months ago, and was met head-on by majority realists at Paper Week who stated off-record that differences in current conditions as compared with last war made Western powers agreements necessary for prevention of chaos. It was admitted that full cooperation of Canada and Sweden would not be forthcoming immediately (Canada has been frank about a "go-slow" attitude on controls, Swedish interests have made no official comment) but leading industry men point out that, after, neither country is a buying country and it will be the latter classification which will fall in with controls and price system, and it is the consuming market complaints which bring such systems to bear.

Throughout Paper Week talks ran the recurrent reminder that this time Canada had a choice of markets, as does Sweden, whereas in other crisis periods such as the last war, there was small alternative beyond the U.S.

In the technical fields, notable at Paper Week was the emphasis of American Pulpwood meetings on manpower and mechanization, highlighting the coming struggle for wood.

Most fully attended meetings and sessions at the TAPPI conclave at the Commodore were those focusing on aids to greater production, as had been forecast by the Canadian annual gathering at Montreal (this issue).

Another big topic at the yearly gathering was shortages and the need for quicker shaping up of priorities channels on metals for equipment, as well as chemical supplies. A full account of Paper Week and the trends shown there, with their basic meaning for the future, will be featured next issue.

A thorough review of the materials outlook was the result of talks in the APPA Materials Committee session Feb. 21 when Allen S. Hyer, vice president and sales manager of Bagley and Sewall, and World War II chief of WPB's pulp and paper machinery section, talked on the machinery outlook; Theodore R. Wilbert, vice president Elof Hansson, Inc., on pulp; Dr. W. W. Duecker, Texas Gulf, on sulfur; Eric G. Lagerloef, APPA, on government regulations; and Colley S. Baker, Eastern Conservation Committee, on waste paper salvage.

At the general industry meeting three west coast men were featured with D. K. Brown, president of Neenah Paper Co., who spoke on "Effects of Paper Imports." Lawson P. Turcotte, president of Puget Sound Pulp, talked on pulp; A. R. Heron, vice president Crown Zellerbach, on public relations; and Phillip S. Ehrlich, San Francisco attorney, on anti-trust laws. Naturally considerable attention was paid to possible future effects of ECA programs, reciprocal trade moves, and other facets of government planning, including the Four Point program.

The featured outside speakers were Kenneth deCourcy, publisher of Intelligence Digest, who at the salesmen's luncheon discussed Russian plans; and Henry J. Taylor, radio commentator for General Motors, at the annual APPA banquet.

DR. J. ALFRED HALL (left), who becomes new Director of the U. S. Forest Products Laboratory, Madison, Wis., April 1, succeeding George M. Hunt, retiring, and

ROBERT W. COWLIN (right), who succeeds Dr. Hall as Director of the Pacific Northwest Forest & Range Experiment Station.

Dr. Hall attended the U. at Madison, joined Forest Service in 1930 at the lab. During World War II, he was special consultant in Washington for F.S. and W.P.B., and was active in stimulating use of wood waste for alcohol. Mr. Cowlin has been at the Portland station since 1929, and since '38 in charge of forest surveys, which have been annually featured in PULP & PAPER through his cooperation.

LOUIS CALDER, Jr. (left), marine veteran of World War II, has been appointed to a new post at Perkins-Goodwin Co., New York City, as Assistant to the President, and has been elected to the Board.

PAUL SCALLAN (right), now Manager of the Chicago office, who joined Perkins-Goodwin in 1932; has been elected Vice President. Others elected Vice Presidents are LLOYD SCHENCK, manager of the Lufkin, Tex., office; and C. FRED ASKER, now representative in Sweden. CHARLES PATON has been promoted to Asst. Sales Mgr., Paper Dept.

Dobrow Forecasts 25 Million Ton Year

Although warning that guesses are dangerous and even careful estimates uncertain, Morris C. Dobrow, executive secretary of the Writing Paper Manufacturers Association, believes that the industry should produce, under the defense program as now projected, from 25 to 26 million tons this year.

Speaking before the Salesman's Association of the Paper Industry at the Beverly Hotel, New York, recently, the association executive believed "the industry will go full blast and probably so continue until such times as parts of it run into manpower shortages and raw material shortages."

Mr. Dobrow attempted also an answer to the $64 question which has been rampant: "has the 1950 production really been consumed, or has it gone into stockpiles?" He recalled that in 1949 when there was production of 20,300,000 tons there were inventory liquidations month after month, indicating production of close to 21 million tons. By logic evolved from a study of both the durable and non-durable goods situation in that year, Mr. Dobrow deduced that 1950 consumption was between 23 million tons and 23,900,000 tons against the production of 24,300,000 actually calculated.

President Walter Geist of Allis-Chalmers Dies

Walter Geist, president of Allis-Chalmers Mfg. Co., Milwaukee, Wis., died Jan. 28 of heart failure. Mr. Geist, 56, has been chief executive of the largest industrial concern in Wisconsin since 1942. He joined Allis-Chalmers in 1909 as an errand boy at 10¢ per hour and is famed for developing the V-Belt Texrope drive.

Huyck Elects

Harry Eldridge, grandson of the founder, was elected chairman of F. C. Huyck & Sons to succeed Mr. James L. Braman, resigned, and Mr. Grenville Ross Holden was elected president, to succeed Francis Huyck Eldridge who died Aug. 3.

Montreal Convention

Fowler Says Many Controls Are Unjustified; But Olmsted Forecasts U.S. Allocations

"Today's problems are manageable by the men in this industry without needing to run to government for assistance," declared R. M. Fowler (shown in picture), president of the Canadian Pulp and Paper Association, addressing the annual luncheon meeting of that body in Mount Royal Hotel, Montreal, Jan. 26.

Mr. Fowler deprecated what he discerned as a tendency towards controls similar to those of World War II. He regarded such controls as unjustified.

"One of the most curious phenomena of recent weeks," said Mr. Fowler, "has been the way businessmen, who have for years been extolling the virtues of free enterprise and protesting interference by governments, have begun to clamor for economic controls. It is true, I think, that this attitude is more apparent in the U.S. than in Canada.

"No doubt, there are some commodities where the sudden impact of defense production will require some measure of government control. But for the pulp and paper industry, with a shortage of 2% to 5% between supply and demand, where war and defense preparation does not change the essential nature of the job it has to do, I refuse to believe that we need to get into the whole elaborate paraphernalia of rationing, quotas, advisory committees, administrators, price ceilings and policing."

Olmsted Predicts Controls

George Olmsted, Jr., president of the American Paper & Pulp Association, had briefly outlined the situation in the U.S. He predicted there would be pulp allocations in the U.S. within six months and widespread controls.

Mr. Fowler said the situation in Canada would demand co-operation, tolerance and courage, but the effort would be worth while if continued on a voluntary basis. He admitted that the political situation might change and compel a return to something approaching wartime regimentation, but not yet.

"This is the most serious issue facing Canada today," said Mr. Fowler, who added that a wrong decision on this matter of controls might be disastrous. There might be no all-out war but continuance of international tension and heavy defense programs for 15 to 20 years. "If we have full-scale economic controls in Canada and the U.S. for 20 years, I wonder how much of our capitalistic, free enterprise system will remain at the end of that time," he said. "We seem to be obsessed with danger and forget that we make up the strongest and most vigorous area in the world. I suggest to you that the job for each man in this industry is to do what he knows best how to do—to do it as well and as intelligently and do as much of it as is possible to do."

Presiding was Harold S. Foley, president of Powell River Co., and retiring from the chairmanship of the executive committee after an unprecedented two-year term. He received a special award and citation "in recognition of the many benefits to the Canadian pulp and paper industry brought to practical effect during his term of office," the presentation being made by L. J. Belnap, chairman and chief executive officer, Consolidated Paper Corp.

New Officers

The new chairman of the executive board is D. W. Ambridge (shown in picture), president of the rapidly expanding Abitibi Power & Paper Co., with Mr. Foley and Mr. Belnap as vice chairmen and R. Logan Mayhew, vice president, Sidney Roofing & Paper Co., and 83-year old C. R. Whitehead, retired veteran executive of the industry, honorary vice chairmen.

Mr. Foley drew laughter when he described Mr. Ambridge as an aggressive leader who was agreeable if he had his own way, who had an opinion on everything, who didn't believe that discretion was the better part of valor but who did subscribe to the theory that he who hesitates is lost, who studied astrology and quoted liberally from Shakespeare.

Mexico-born Douglas Ambridge, whose Abitibi "empire" recently spread to the Pacific Coast, is 53, served as a private and sergeant in World War I, joined Abitibi in 1923 as a control engineer at Iroquois Falls, bossed several big wartime programs such as shipbuilding and synthetic rubber, and became head of the Abitibi organization about five years ago.

CORROSION RESEARCH

Twelve Canadian alkaline pulp mills have entered into an agreement with the Pulp and Paper Institute of Canada to finance a two-year, intensive study of the causes of corrosion in digesters and all types of equipment up to the stage of slush pulp, Dr. Lincoln R. Thiesmeyer, president of the recently reorganized Institute, announced at the annual meeting of the technical section, Canadian Pulp and Paper Association, in Montreal, January 24-26. Plans for this study were described in PULP & PAPER, Jan. 1951 issue, page 34.

This corrosion research, most spectacular of the jobs to be undertaken by the Institute so far, will be carried on in close liaison with similar studies in the U.S., Scandinavia and Australia, and close working relations in this connection have been established with the Institute of Paper Chemistry at Appleton, Wis.

Other research projects under way, Dr. Thiesmeyer stated, were in the field of applied silviculture in Ontario; kraft mill recovery processes in collaboration with the B.C. Research Council, currently engaged in independent quest of a means to reduce or eliminate kraft odors; holding boom design, being worked out with the National Research Council. And there are two possible contracts in the field of recovery and improved use of sulfur.

Altogether, the Institute is committed to research representing a cost of some $250,000.

Holland Heads Council

It was announced that Walter W. Holland, general superintendent of Quebec North Shore Paper Co., Baie Comeau, Que., had been elected chairman of the section's executive council, succeeding E. G. Kirby, assistant manager, Price & Pierce Ltd., Montreal. Born in the paper town, Thorold, Ont., Mr. Holland has served the Pulp and Paper Research Institute, Canadian International Paper Co., Price Bros. & Co., and Ontario Paper Co.

Vice chairman is H. C. Lee, assistant chief engineer, Canadian International Paper Co. Council members: T. R. Moore, mill manager, Anglo-Newfoundland Development Co.; J. A. Hanna, mill manager, Bathurst Power & Paper Co.; R. L. Fraser, assistant manager, St. Anne Paper Co.; Dr. W. Gallay, director of research, The E. B. Eddy Co.; J. R. W. Grieve, superintendent, Brown Corp.

REVIEW OF PAPERS

Papers presented at the meeting covered a wide range of technical subjects. One which aroused great interest was that of Dr. C. A. Sankey, Ontario Paper Co.; W. R. Keating of Quebec North Shore Paper Co. and Dr. G. A. Allen and Dr. S. G. Mason of the Institute, on the application of radioactive tracers to measurements of fibre flow and distribution,

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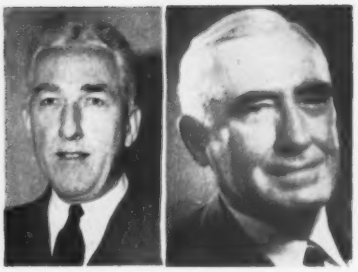


VICE CHAIRMAN OF CPPA:
Harold S. Foley (left), President of Powell River, who completed 2-year term as Chairman, carries on as Vice Chairman.
L. J. Belnap (right), Chairman of Consolidated Paper, the other Vice Chairman, made ward to Mr. Foley for his services to the industry.

briefly covered in (page 84, Jan. 1951 issue). PULP & PAPER. The experimental work represented the first time in Canada that radioactivity had been used in a production operation (at Baie Comeau) at the mill scale, and it proved practicable to trace tagged fibers from the dilute suspension of raw material to the finished product.

Small groups of fibers were traced with exceedingly minute amounts of radioactive iodine, manufactured in Canada's nuclear reactor at Chalk River, Ont. The fibers were followed with a Geiger counter. The technique is expected to prove useful in understanding what goes on in many phases of the paper-making process. It was shown that measurements of this kind could give useful information which might lead to a product of increased uniformity.

1600 Register at Meeting

It was the biggest gathering of the industry's technical men in the history of the section, whose annual meeting coincided with that of the association itself. Some 1600 registered for the three-day meeting in Mount Royal Hotel. Many were from the U.S. and also from Finland, India and Japan.

Awards and prizes for the authors of outstanding papers were made, as follows: The I. H. Weldon medal to Dr. J. Keith Russell, research chemist, and David Craig, research engineer, Anglo-Canadian Pulp and Paper Mills, and H. Elgie, Gaspesia Sulphite Co.; the technical section service award, to Dr. Wilfrid Gallay, director of research, The E. B. Eddy Co.; the C. Howard Smith medal to D. B. Scrivens, formerly of Spruce Falls Power & Paper Co., now with Taylor Instrument Co., and David W. Peat, of Howard Smith Paper Mills; safest mill awards to St. Anne Paper Co. and Kimberly-Clark Corp.; gadget competition, P. X. Laberge, plant engineer, Donohue Bros., and F. Lindberg, and H. Fisk, Great Lakes Paper Co.

High Yield at Bathurst

Bathurst Power & Paper Co. at Bathurst, N.B., is now operating its kraft mill at a pulp yield of 62%, and in view of the need for economy in wood and other materials use the experience of this mill in the field of high-yield production when described by J. McK. Limerick, research director, and C. V. Callaghan, of Bathurst, stirred considerable attention.

A contributing factor in Bathurst's achievement has been the brown stock refining by the Sutherland process, whereby kraft pulp in the presence of hot black liquor is refined before passing to the brown stock washers. Pulp representing current operating practice having a chlorine number of 16.2 and a yield of 62% and a pulp from a trial run of 19.2 chlorine number and 64% yield were evaluated by Mr. Limerick for physical and chemical characteristics. These were compared with a commercial grade not produced by hot refining, having a chlorine number of 2.9 and yield of 47%. The strength of the high yield pulps compared very favorably, and experimental bleaching was successful. High yield pulps produced by this process were shown to have high initial strength due to the brown stock refining and those described are producing a kraft linerboard of good quality.

WALTER W. HOLLAND (left), Gen. Supt. of Quebec North Shore Paper Co., elected new Chairman of Canadian Technical Section, and E. G. KIRBY (right), Asst. Mgr., Price & Pierce Ltd., Montreal, who completed term as Chairman.

DR. LINCOLN R. THIESMEYER (left), President of Pulp & Paper Institute, who announced corrosion studies, and H. C. LEE (right), Assistant Chief Engineer of Canadian International Paper Co., who was elected the new Vice Chairman of the Canadian Technical Section.

Wet End Ventilation

Wet end ventilation of high speed news machines was dealt with by Cecil MacDonald, process engineer, New Brunswick International Paper Co. The amount of water vapor dissipated from the wet end has become so great that temperature and humidity in that area can reach unreasonable proportions, said Mr. MacDonald. His company has enclosed that end of the machine so that hot vapors can't escape into working areas but are drawn off by fans.

HONORARY VICE CHAIRMAN OF CPPA:
R. LOGAN MAYHEW (left), Vice Pres. of Sydney Roofing & Paper, Victoria, B.C., and C. R. WHITEHEAD (right), retired veteran industry executive.

Sulfite Recovery Process

L. K. Bickell, chief chemist, and G. D. Trethewey, research chemcial engineer, B.C. Pulp & Paper Co., outlined a possible process of treating sodium base waste sulfite liquor and inferred if the problems of manufacturing sulfite pulp by cooking wood chips in sodium base sulfite are solved, together with those of recovery, then it would appear that the resulting waste liquors could be treated to recover heat and chemicals.

Newsprint Operation Papers

Some of the conditions surrounding the removal of water from the wet sheet of newsprint as it forms on the wire screen were outlined by another British Columbian, Gleb I. Goumenjouk, research engineer, Powell River Co., who said that it would appear logical to design a radically different, very short wire screen with controllable drainage devices, the objective being machine operation at much higher speeds than present.

Operation of anti-deflection top press rolls on newsprint machines as a means of attaining consistently low moisture content was reviewed by D. R. Catford, process engineer, Canadian International Paper Co., Three Rivers. Less steam is required in the dryer section when these rolls are used, he said, and the sheet is better pressed. Reduction in steam consumption shows the roll will pay for itself in steam alone in less than a year.

Importance of a properly designed hood in machine room ventilation was stressed by R. E. Willis, Ross Engineering of Canada. With all factors considered, he said, the cost of air for machine room ventilation for a machine making 200 tons of paper daily can amount to about $70,500 per year.

Pump Maintenance

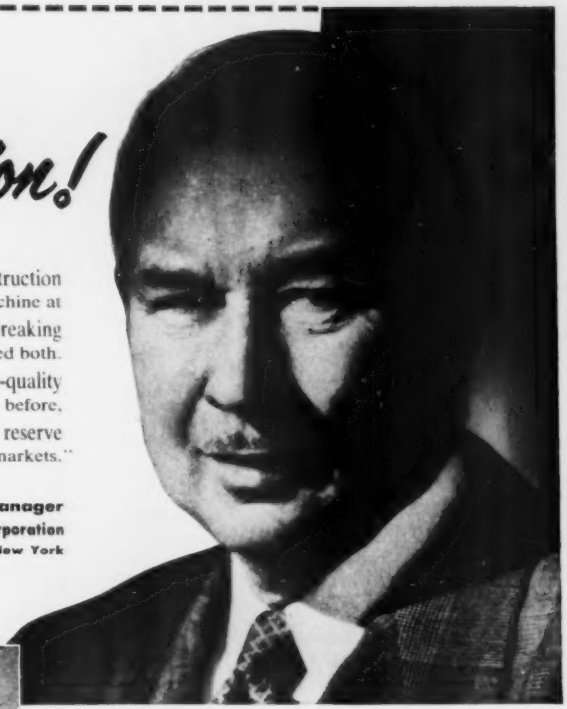
R. R. Burland, Canada Pumps, affiliated with Buffalo Pumps in the U.S., suggested for effective pump maintenance: Perfect initial alignment, regular bearing inspection and lubrications, care that fresh water for the stuffing box is on and working at adequate pressure before the pump is started, insistence that all rings of packing, particularly the inside rings, are removed before packing.

Instrumentation

Possibilities of process control instrumentation are not being fully exploited by the industry, according to W. S. Yun-

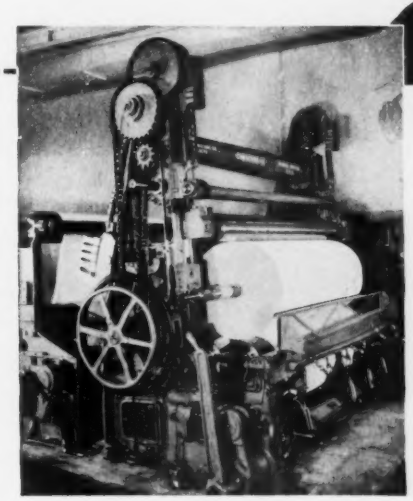
(Continued on Page 96)

They emphasize *production!*



"When we were planning construction of our revolutionary new coating machine at Johnson City, N. Y., we asked for record-breaking capacity, and *reserve capacity*. We achieved both. We're producing and converting top-quality sensitized papers faster than ever before, and we still have plenty of capacity in reserve to meet new demands in expanding markets."

JAMES FORRESTAL, General Manager
OZALID, Division of GA&F Corporation
Johnson City, New York



The Camachine 14 at Ozalid is equipped with pneumatic constant web tension unwind, electronic side register control and pneumatic slitter units. Speed rated at 1800 f. p. m. Maximum rewound roll diameter is 38".

OZALID's giant paper sensitizing machine, largest and fastest in the world, is capable of coating and drying 249,000 feet of 79" web per eight-hour day. The 79" web is converted to standard width rolls on a Camachine Type 14 Slitter-Rewinder. Single shift operation of the Camachine handles the complete output of the coating machine, despite overtime scheduling of the coating operation. Camachine has substantially increased the Ozalid production potential over roll converting equipment formerly used.

Its reputation for dependable, trouble-free performance at record-breaking speeds has made Camachine the *one* outstanding name in roll production equipment. No matter what material you produce or convert in roll form, Camachine engineers will be pleased to consult with you regarding faster production and improved roll quality.

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All across the North American continent, north to south and east to west, the industry is improving woodlands technics and introducing large scale conservation, reforestation and mechanization.

HOW SOUTHERN KRAFT OPERATES

PART I

If yours were the task of feeding 3½ million cords of wood annually into nine large pulp and paper mills, you would correctly consider this as calling for a large effort. And you probably would insist also upon bulwarking some percentage of this supply through ownership and skillful management of forest acreage.

This is the philosophy of Southern Kraft Division of International Paper Co., whose operations from Georgetown, S.C., to Springhill, La., encompass a major portion of the South. Dispersed within this area are 2½ million acres of company-owned forest land, the highly discretionary management of which blended with procurement of wood supply from numberless other owners, presents a most intriguing application of the American theory of individual enterprise on a large, efficient scale.

Outright ownership of forest stand to completely supply the mills would be undesirable. The company, essentially one for producing wood pulp, wants to be a good local citizen, buying pulpwood and providing employment.

So Southern Kraft Division wants its pulpwood supply to come from John Q. Public; which means that not only must John Q. find this profitable, but he must be induced to stay in the business by maintaining and increasing his stock of trees, instead of cashing in his chips and quitting the game.

EARL PORTER (left), Southern Kraft's Woodlands Dept. General Manager, and TOM N. BUSCH (right), Chief Wood Procurement Supt., both with headquarters at Mobile, Ala. Mr. Busch, formerly Logging Engineer at Georgetown, S.C., invented or was co-inventor of some of the equipment described in this article.

Resulting from this determination, there exists a panorama of buying and selling, exhorting and cajoling, money-spending and evangelizing, extending through 11 states; all conducted within the pattern laid down by far-seeing management but subject to the idiosyncrasies of variable human elements and environment. This activity permeates the range of economic and social life of the region since the Southern paper industry reaches to tree roots. Where company forest ownership is involved, it creates jobs direct—in stand improvement, road making, fire control, timberland harvesting. On its neighbors' stands, company policy achieves the same goals, with added profit for ownership.

In all this pattern of activity, the graduate forester has come into his own. His task is the management of company lands, the "selling" of John Q. Public in a parallel activity. Within the decade the number of graduate foresters in private employ has so expanded in the South that the company employs as many of these as formerly constituted the quota for the 11 states.

Departmental Management

Paper production and woodland properties in the South are under direction of Major J. H. Friend, a company vice president, whose assocation with the corporation has been co-existent with the Southern Kraft Division. The Division headquarters are at Mobile, Ala., and here the Woodlands Department coordinates in which the pulpwood supply—present and future.

As the Southern Kraft Division blossomed into more and more production units, each mill's wood land organization functioned separately in its own area. Tax accounting problems brought planning for a coordinating agency in 1937 and establishment in 1938 of The Woodlands Department.

Since 1945, the Woodlands Department has been under the direction of Earl Porter, a graduate of the New York Ranger School with many years practical experience in the forestry field.

From this beginning, departmental responsibility has expanded to embrace general supervision over procurement of wood, company forest management, and conducting of a public program for the benefit of land owners.

Tom N. Busch is superintendent of procurement, a task which includes maintaining of strict standards of pulpwood measurement methods as free as possible

SOUTHERN KRAFT'S STORY — TOLD HERE FOR FIRST TIME

Here is the first of a series of unusual articles prepared exclusively for PULP & PAPER readers, describing the forest production policies and methods of International Paper Co., Southern Kraft Division.

This marks the first time that the important story has been told of how this largest paper company on the continent, and dominant producer in the South, is supplying its nine big kraft mills from Springhill, La., and Camden, Ark., to Georgetown, S.C., with 3,500,000 cords of wood annually. Also, of how it manages 2,500,000 acres of fee ownership lands.

PULP & PAPER's Southern associate editor toured the company's woods camps in a zigzagging course over several thousands of miles of the South to gather this material.

The Southern Kraft Division management faced a challenge of mammoth proportions in supplying the wood for its mills on a sustained yield basis. The manner in which this challenge was met makes an interesting story.

The story as it unfolds, dramatizes the vital importance of modern equipment in planting and harvesting the timber crop, the vital roles of the men who work and profit from this seed-to-pulp and paper cycle, and the policies of a far-seeing management in working harmoniously with hundreds of neighbors in the South in a vast economic project.

Part I, starting on this page, deals with the overall picture and with the story in the area of Georgetown, serving the world's largest pulp and paper mill.

SHOVE 'EM OUT: International crawler pushes loaded truck.

INTERNATIONAL

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POWER THAT PAYS

Pushing and Pulling for Pulpwood

PULL 'EM OUT: Internationals work fast, bring out more logs.

Pushing loaded trucks out of the woods or pulling logs to the brow—Internationals do the whole job.

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International tractors have the rugged, brute power and champion dependability that make them right for you. See your International Industrial Distributor —and see what we mean!

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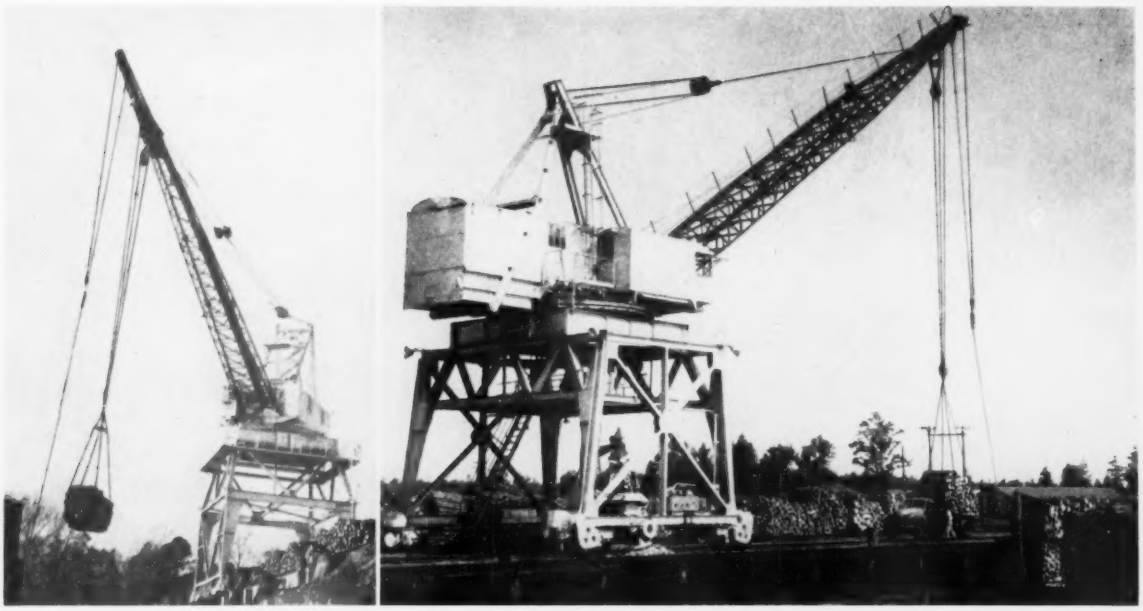

AMERICAN HOIST & DERRICK CO. 45-ton Gantry Crane is shown at left lifting load of pulpwood with Busch four-legged bridle crane at new 10-acre Elizabethtown, N.C., Landing for Southern Kraft Woodlands Division. At right, another gantry crane at Wilmington, N.C., is unloading truck of pulpwood in 2½ to 3½ minutes. It loads a 275-cord barge in 5 hrs. A Busch sling, shown again here, can be released by drawing out iron bar with tag line. Result: Fast, safe work. Careful barge loading, not too high, is important.

from the personal element, and keeping of uniform company records. Two traveling inspectors engage in mill checks, and training.

Each mill has its procurement officer who allocates its supply needs through purchase orders to its suppliers. Pulpwood received at mill yard or shipping point must meet standard tests for quality, minimum and maximum diameter, freedom from decayed wood. All payment is on 128 cu.ft. standard cords, a legal requirement in some states of the South.

Sig. E. Fogelberg, as chief forester, heads up management of company lands. The lands are divided into divisions, based upon fundamental factors, with a supervising forester in charge of each.

It is difficult for one not intimately acquainted with the rural scene to understand the manner in which the paper mill affects the economy of the agricultural South. This region is not one of heavy forest stands, but one embracing a large total wooded acreage all of which has been cut at least once and, since not needed for farm crops, is supporting nature's cycle of tree growth. Acreage of agricultural activity, of forest employment, and that of owners indifferent to either of the two categories are interspersed in varying quantities. International Paper Co. alone affords entire or partial employment to 25,000 men in the woods.

The "partial employment" includes those who devote about four months each year to full time attention to their small farms, and earn $800 to $1000 in cash from woods employment; and those who augment their income in similar amount in four months of pulpwood production. The company does not participate directly in pulpwood production, leaving that to local enterprise so procurement of the tremendous volume of pulpwood purchased involves but 150 full-time employes and in timberland management but 250 full-time employes. Of this 400 total, 135 are professional foresters.

SIG E. FOGELBERG (left), Chief Forester for Southern Kraft, and RUSS S. ANDREWS (right), Chief Forest Engineer, are at central headquarters in Mobile.

A third function of the Woodlands Department comes under the direction of Russ Andrews, a "forest engineer." This service activity has a particular explanation. The company prefers in any given area to relate pulpwood taken out to its place in total forest drain and in relation to the forest increment. This drain includes all forest products so the logistics of the situation requires a bit of ledger keeping. Where drain of other forest product industries is heavy, the company likes to go easy on pulpwood cutting.

This does not sound exactly like an ogre corporation. It sounds even less like one when talk comes up about the conservation forester the company has in each of nine states, salary and all expense from company exchequer, to spend the year—from beginning to end—helping the small landowner to make more money from his woods.

Seed Planting Policies

The company does the best tree-growing job possible on its own lands as an example to neighbor owners. In easy trucking distances from mills its efforts to get owners to grow trees is intensified. For instance, in six counties around Panama City, the Florida Forest Service grows pine seedlings, the company buys them and the Soil Conservation Service and Agricultural Extension service distributes them. Local organizations sponsor the public civic drives for planting. In the 1949-50 season the 1½ million seedling allocation was over-subscribed before planting time; the 1950-51 season quota was boosted to 3 million and the company looks ahead to a 6-million seedling program.

Company experience has been that a civic club sponsored planting drive results in far greater acreage than that involved in the seedling assistance deal. In the Springhill area (two parishes in Louisiana; one Arkansas county) the company made four planting machines available to the Soil Conservation Service in its drive. Seedlings in Louisiana were 50¢ per 1000 but the company gave 1000 seedlings free with each 5000 bought. In Arkansas the seedlings were $2.50 per 1000 so the company matched on even terms. The Minden, La., section planted 125,000 seedlings in 1948-49 but went to 1,600,000 in 1949-50. Around Magnolia, Ark., the company furnished 120,000 "bonus" seedlings but the total planted ran to 2,000,000.

Allocation of free seedlings is generally on the basis of pulpwood cuttings in each

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THE COMPLETE LINE

Clark-Aiken

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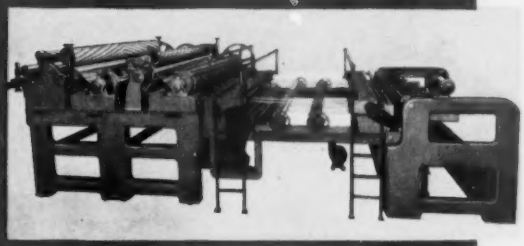
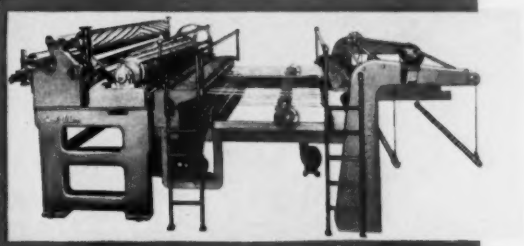
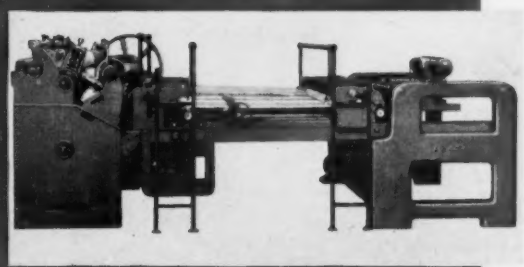


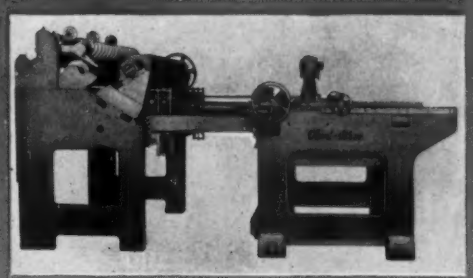
Clark-Aiken Type [illegible] Cutter-Layboy Unit for high-speed cutting of board or pulp and multiple sheeting. 76" to 220", inclusive, with or without overlapping delivery. Furnished with conventional layboy as illustrated or overhanging type layboy shown below.



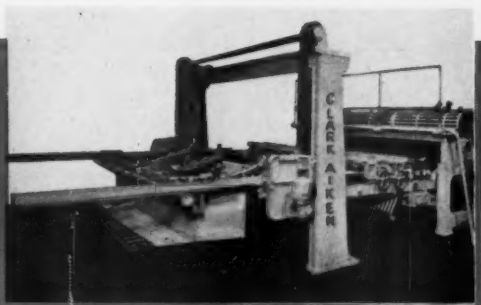
Clark-Aiken Type [illegible] High-Speed Heavy-Duty Stripper-Cutter-Layboy Unit for heavy service, 76" to 220" inclusive. Conventional or overhanging type layboy (illustrated) for side removal of piles.



Clark-Aiken Type [illegible] Layboy Unit for extreme accuracy in sheeting rolls 76" to 124", inclusive. Conventional or overhanging type layboy, with or without overlapping delivery



Clark-Aiken Type D High-Speed Economy Cutter for finishing room service and for use of converters and printers. 36" to 100", inclusive, with or without overlapping delivery. Conventional or overhanging type layboy.



Clark-Aiken "Vickery" Layboy. Skids rest on floor and delivery rises as pile height increases. Piles may be removed from side or rear and delivery quickly drops to starting position greatly reducing cutter down-time. Available for all Clark-Aiken Cutters.

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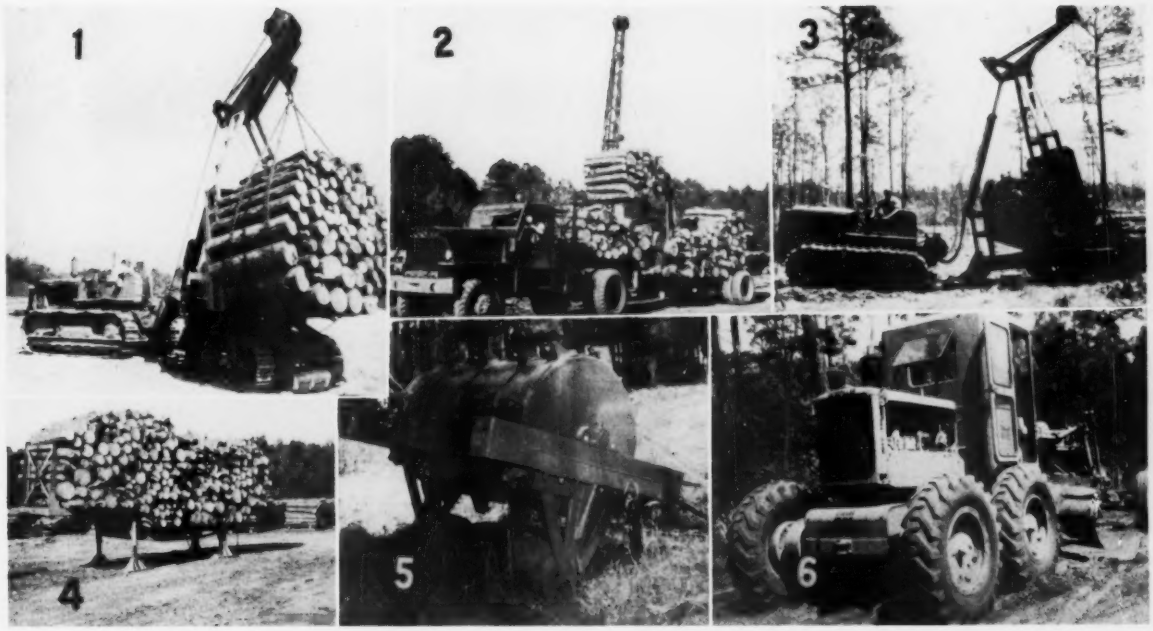


MECHANICAL EQUIPMENT USED IN GEORGETOWN MILL AREA:

1—International TD-14 Tractor drawing Busch high boom arch handles truckload of wood into and out of reserve at Wilmington Landing. Arch is mounted on Athey forged track-wagon track. Acme steel strap used.

2—Cummins Diesel-Powered Corbitt Truck and Evans-Busch Trailer being loaded at Tuxberry Landing by crane using Busch 4-legged bridle crane.

3—International TD-14 Tractor pulls Busch high boom arch on Athey tracks to woods road.

4—Another view of Evans-Busch trailer frame standing loaded at Tuxberry Landing.

5—You may recall Alice in Wonderland's White Knight who had "my own invention." This is one—I.P.'s own thinking machine. If you want to take it somewhere, just hook on and pull it. When you want to cut a swatch through unwanted growth or too thick seedlings, bolt old veneer knives to dogs outside drum, fill drum with water, flop the contrivance over and pull with tractor. Result: Chopped up scenery.

6—Caterpillar Diesel 112 Motor Grader at work in Georgetown's PD district.

area. The conservation program includes making planting machines available, school planting and thinning demonstrations, cooperation with 4-H and Future Farmers (Smith-Hughes Act activity) clubs.

Policies on Own Lands

On its own lands the company follows a five point program embracing: (1) Forest fire control; (2) timber sale from commercial thinning; (3) construction and maintenance of access roads; (4) regeneration of stand by seed tree preservation, seedling planting, and hardwood control; and (5) non-commercial thinning of dense stands. All lands of the company were cut at least once before acquisition.

The company is growing all kinds of forest products. About one-half of the wood grown comes off as pulpwood; the other half disposed of to other forest industries who often sell pulpwood back to the company. Overcrowded stands are periodically thinned so as to utilize suppressed trees and give more space for those remaining. The program is planned to obtain maximum production per acre in trees of desired species. The company considers a 45-year rotation rather than a longer period as the most profitable one.

Average sales of commercial growth from company lands have averaged about 100 million feet of timber annually, mostly in sawlogs. Average pine growth is estimated at 6/10ths cord per acre-year with annual cut averaging 2/10ths cord per year, the difference going into stand increment. After 10 or 12 years a higher cutting rate can be applied to managed stands.

Most Wood for Georgetown Mill

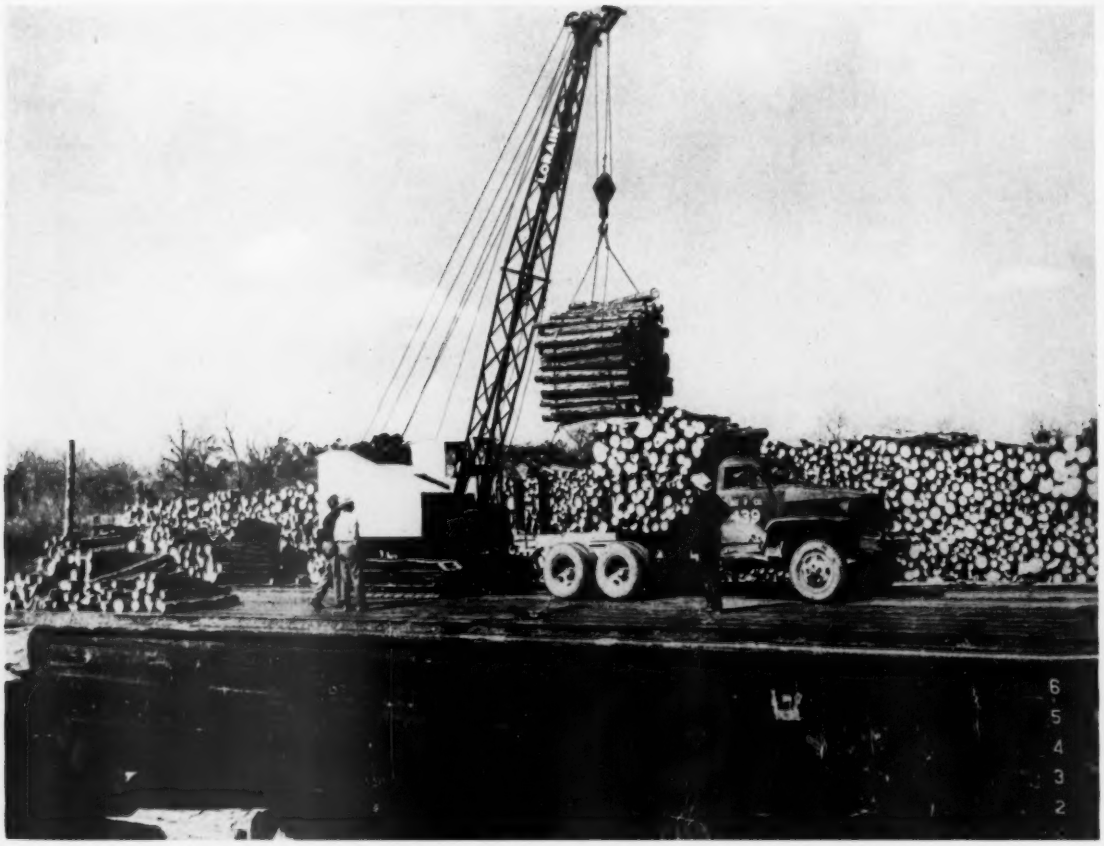
Of Southern Kraft Division mills, the Georgetown, S.C., is the world's largest. Its daily 2400-cord capacity points up the procurement angle and problems of supply. It has, perhaps, the most highly mechanized pulpwood supply operation in the South. Located on the Sampit River, off Winyah Bay, 12 miles from the Atlantic, the mill site is provided via the inland waterway and connecting rivers with a useful transportation medium. The principal roads of the area are of high type with strong bridge structures, many more than average length. Pulpwood deliveries are about 28% by barge, 18% by truck and the balance by rail.

The inland waterway is used as a principal pulpwood delivery channel, with motor trucks hauling to strategically placed landing points from the woods. Trucks are used in a network for direct delivery in mill yard for a radius of 65 miles. Smaller independent dealers' or

MACK TRUCK WITH WOOD LOAD on 6-cord trailer pulls up in front of scaling office at Georgetown mill. Owner operates by contract; does own driving.

INTERNATIONAL K-6 MOTOROLA 2-WAY RADIO TRUCK pulls Evans "Sumter" type trailer with its Caterpillar D-4 and fire plow to woods blaze. Plow furrow stops blaze spread.

FOUR-WHEEL-DRIVE AUTO CO. truck custom-built in Minnesota stands in front of dispatcher's office at Georgetown, S.C., Mill. It has GM diesel motor.



LORAIN ½ YARD CRANE (Thew Shovel Co., Lorain, O.), powered by Caterpillar D-4400 diesel motor, and with four-legged bridle sling developed by Southern Kraft's Tom Busch, is shown in action here unloading pulpwood trucks directly to a barge at New River Landing, Jacksonville, N.C. This wood is destined for the Georgetown, S.C., mill down the coast.

producer trucks deliver direct to mill or else to yards where pulpwood is racked and paid for weekly. When wood is paid for at landings it receives an identifying marking.

There are landings of varying size and importance. Four major points in terms of volume of wood and mechanical equipment include: Tuxberry yard, 60 miles from the mill on the Wando River; Wilmington (N.C.), landing on Cape Fear river; the New River landing at Jacksonville, N.C., and Elizabethtown, 75 miles above Wilmington.

Tuxberry yard functions as a combined concentration and storage yard, pulpwood being brought into the 4-acre site by private dealer trucks, then transported to the mill by the company's truck trailers. The fluid efficiency of this landing is derived from a truck mounted crane that rapidly unloads or loads highway conveyances, shifts pulpwood stacks about the yard in sling-loads or stacks it on barges. Tuxberry yard normally works daylight hours, but sometimes around the clock, being equipped with a mobile electric power generating unit. The crane keeps a dozen big trailer-trucks rolling; can load one out every 15 minutes.

Transportation Fleet

The transportation fleet includes 110 Evans-Busch 6-cord capacity trailers, ten Cummins diesel-powered Corbitt trucks, two Mack Diesels, one Six-by-Six truck, and three units from Four-Wheel-Drive Auto Co. The ten Corbitt units were custom built by Corbitt Motor Co., Henderson, N.C., and the three Four-Wheel-Drive units were custom built by Four Wheel Auto Co. at Clintonville, Minn., and are GM diesel-powered. These fast rolling units are used to haul wood up to 65 miles one way with average load of 6.2 cords. These are being converted into tandem dolly units with 8.5 cord frames. The company uses an "off the road" type of tire, not just for highway use.

The trailer was developed and patented jointly by Tom N. Busch, IP logging engineer and now procurement chief in Mobile headquarters, and John E. Evans, of Evans Mfg. Co., Sumter, S.C. The trailer is characterized by retractable landing gear, standing gear and detachable axles. With dolly removed, the trailer body stands as a frame and can be spotted for loading at will. In the woods it may stand several days while a small producer accumulates its load. Since the motor vehicle license applies to dollies, these frames can stand for days without penalty.

These trailers may be used with forged tracks instead of wheels and during wet, unfavorable soil conditions, may be taken into the woods by tractors, loaded with pulpwood, and drawn to firm roads for placement of wheels for the quick trip to landing or mill. The front landing gear screws up, operating through a winch that works from one side in the manner of an automobile crank. The back landing gear folds up as the power unit backs the trailer. After it folds up, the operator cranks it to secure position. Both operations are performed on the road side away from hazardous traffic.

At one stage of development of its transport system, the company displaced 40 standard gasoline consuming trucks with the ten Cummins diesel-powered Corbitts. This resulted in scaling the maintenance crew down from 52 men to five, with annual payroll savings of $180,000. In shifting from gasoline at 5.5¢ per mile to diesel fuel at 1.25¢ per mile, a savings of $3500.00 per unit was effected the first year.

H. A. Thompson is in charge of South Carolina company job operations, assisted by T. L. Campbell, who is in charge of transportation, and Jesse Mills, who is in charge of mechanical loading of trailers.

Driver applicants of truck units are carefully screened through a series of written and oral tests before they are em-

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TITAN JUNIOR ONE-MAN SAW—complete bar swivel, automatic clutch—5 H. P.

TITAN JUNIOR SAW—equipped with accessories for use by two men.

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CHAINS—five types for every cutting need and every kind of wood.

BARS—five types, ranging in length from 2 to 12 feet on the two-man saw, including a thin bar, and from 18 to 44 inches on the one-man saw.

ALL CHAIN SAW ATTACHMENTS, accessories and parts.

The outstanding TITAN features include:

LIGHT WEIGHT—more power per pound.

NO VIBRATION—plenty of smooth power to carry the load.

LONG LIFE—vital parts are protected.

EVENLY BALANCED—easily handled and carried in the woods.

TEST RUN—all engines are fully tested and run under maximum load.

See Titan Chain Saws in operation before you buy.

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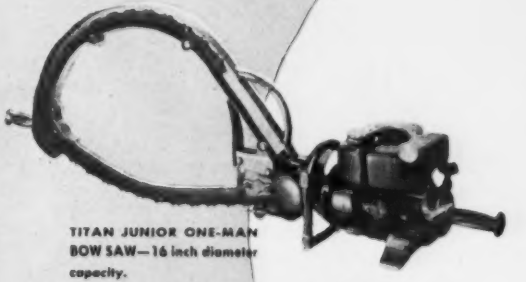
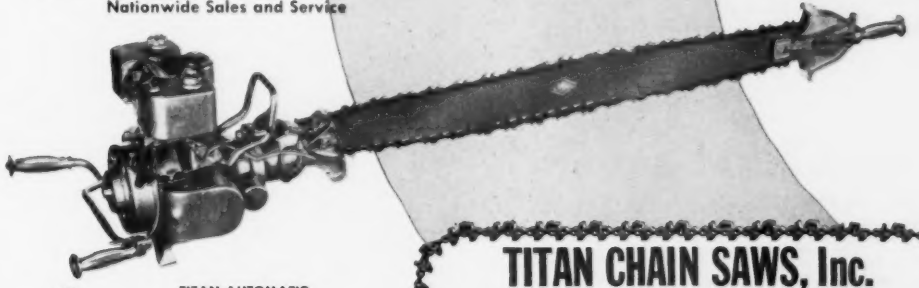


TITAN JUNIOR ONE-MAN BOW SAW—16 inch diameter capacity.



TITAN AUTOMATIC BLUESTREAK TWO-MAN SAW—automatic clutch, two-cylinder, two-cycle, opposed type 12 H. P. motor.

TITAN CHAIN SAWS, Inc.
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GEORGETOWN AREA, S.C., EXECUTIVES (l to r): J. E. McCAFFREY, Georgetown Wood Procurement Supt.; F. C. GRAGG, Georgetown Forester; T. L. CAMPBELL, Transportation Chief; F. G. TERRAL, Supt. in charge of all I.P. Mechanized Docks in North Carolina; and WILBUR B. KESSAM, Assistant to Mr. Terral, in charge of New River Landing.

H. H. FLICKINGER (left), Asst. Wood Procurement Supt., at Georgetown, S. C., and H. A. THOMPSON (right), Truckwood Supt.

ployed. Their cruising speed is held within state law speed limits, which is well within their power reserve. The adherence to an easily effected load speed contributes to economical operation and low maintenance. Wherever possible, the transportation manager lays down routes through small communities to avoid congested or business districts. The fleet has operated to as high as 1½ million miles without serious accident. Each truck is equipped with a tachograph that records speed, time on the road, stopped intervals, etc. This equipment has been operated 1,205,126 miles during 17 months with only six minor accidents involving less than $3,000 damage. Two-way short wave radio is being installed for close control of the fleet.

Wilmington Landing Operations

Opposite Wilmington on Cape Fear River, is a major reserve and barge shipping point from the upper district to the Georgetown mill. It handled 85,000 to 100,000 cords per year. Its outstanding feature is a big gantry crane that loads out the barges, transferring an entire truck load of pulpwood to the waterborne conveyance with one easy swoop.

Operating between river bank landings and the mill is a fleet of 24 barges measuring 128 feet long by 32 feet wide, as also 12 barges scaling 105 feet long by 32 feet wide. The fleet is completed by four Atlas diesel powered towboats, one of which (No. 6) can handle four and the others three barges each in a tow. Larger barges have a capacity of 275 cords. Their loading direct from trucks requires 5 hours; from pulpwood reserve stacks, 8 hours. A new "pusher" type tug will be added in 1951.

There are from 350 to 400 individually owned producer and farm trucks serving Wilmington Landing. These begin to show up at an early hour to get their turn at the gantry crane. In unloading, four cables are passed around the pulpwood ends close to the truck chassis. The four ends are fitted with eye splices through which a special nickel chrome alloy steel rod is run. When the crane lifts, the cable ends tighten against the bar. Once spotted on the barge, the iron rod is extracted by means of a tag line that permits the workman to stand clear. This cable assembly is identified as the "Busch" 4-leg bridle sling after the designer.

Loading of barges must be done with care. The outside tier is set solidly with a slight slant to the center. Pulpwood must not be piled too high else it elevate the metacenter, which would cause the barge to unload itself if started to rocking from waves. The company had such an experience. The central section of the barge is loaded last.

When incoming pulpwood is sent to reserve stock it is held up in slings while Acme steel straps with buckles are passed around the center of the load before stacking. When set down, the straps tighten, holding the load as a unit until picked up again. When this is done, the bands automatically loosen, permitting easy removal and re-use.

The gantry unloads trucks in an average of 3½ minutes each, the vehicles moving up to the specified location. However, when stacking the edges of the barges this is stretched slightly so extra care may be exercised.

Handling of pulpwood into and out of reserve stock is performed with the aid of an International TD-14 tractor and a Busch high-boom arch. This latter piece of equipment is designed and patented by T. N. Busch. An accompanying picture shows how the two box members are butted in at the goose-neck and two tension members provided. The rolling outrigger at the back was added to prevent tipping when lifting 2½ to 3½ cords of pulpwood from a truck. All of this is on truck-load scale. The equipment was originally designed to handle two one-cord packages in the woods and when used in woods logging on one cord package loads, the rolling outrigger is removed.

Operations at Other Landings

A newer 10-acre landing at Elizabethtown, 75 miles above Wilmington, is equipped with a 45-ton American Hoist & Derrick Co. gantry crane, as also with the International TD-14 tractor and Busch high boom arch.

At New River Landing (6 acres) at Jacksonville, truck to barge transfer is effected with a ½ yard Lorain (Thew Shovel Co.) crane that is powered by a Caterpillar D-4400 diesel motor. The barges are brought into position for loading end-on to the bank. They are snubbed in as the tide rises and falls by hand winch. The gangway for loading trucks is substantial and kept flat to barge deck level to minimize the "bump" of passage. J. F. Freeman is in charge of the Jacksonville landing. F. G. Terral is in charge of all barge landings.

The supplying of pulpwood to the big Georgetown mill is a stable economic factor in the area's rural life. Situated away from congested city population and its milk shed, the farmers substitute one or two loads of self-harvested cash providing loads of pulpwood. These farmers say the pulpwood keeps them going, so when the crop comes in, "it doesn't all go to square up debts."

Georgetown Woodlands

F. C. Gragg at Georgetown, has under his supervision approximately 625,000 acres of woodland, divided into seven districts. Situated at the Atlantic coastline the area is characterized by flat country with sandy soil, by nature inclined to be excessively wet or dry, either alternative making felling and transportation of pulpwood difficult in the woods. Where pine seed trees are plentiful there results a luxuriant seedling crop with so many trees that thinning when breast or shoulder high becomes desirable to prevent natural competition consuming an excessive period of years.

Primary roads in the Georgetown woodlands division are laid out with a 35-foot wide cleared right-of-way, and have a 22-ft. span inside the shoulder. Secondary roads have a 30-ft. cleared right-of-way, with an 18-ft. crown. The company has found that good clearance for two loaded trucks to pass one another is essential.

Equipment used for road construction and maintenance here includes one Caterpillar No. 112 diesel powered motor patrol, one Caterpillar No. 66 tow-grader, three Caterpillar D-7 bulldozers, a TD-14 International crawler tractor, and Allis-Chalmers HD-7 bulldozer, a Lorain (Thew Shovel Co.) ½ yard dragline crane and a ⅜ yard Link-Belt crane, a 7½ yard Bucyrus-Erie pan earth mover, eight dump trucks, a 2½ ton 6-wheel drive GMC fuel and lubrication service truck, a pick-up truck for general service, and a labor truck. Equipment also includes a mobile (Army surplus) kitchen and a similar unit converted to sleeping quarters.

In this flat, sandy country, heavy annual rainfall makes drainage the first requisite for good roads and woods trails. Topography is studied carefully, and costs of access ways are kept down. The company producing its own concrete culvert pipe.

(Continued on Page 56)

Tomorrow's pulp and paper depend on TODAY'S trees

WHEN A WORM LIKE THIS

CAN TURN

TIMBERLANDS

LIKE THIS

INTO

DESOLATE FIRE HAZARDS LIKE THIS

CONTROL LIKE THIS IS NEEDED

Let's save our priceless timber stands

Latest available figures tell us that there are over 2,267,000 acres of budworm-infested timberland in Washington and Oregon alone. A 267,000-acre spraying operation in 1949 with Penco forest spray showed a 97% budworm mortality. We are glad to join with other interests, as well as state and federal authorities, in this fight to conserve our natural resources. Support from every quarter will be helpful, for the battle may be a long one.

In the West: Pennsylvania Salt Manufacturing Company of Washington . . . Tacoma, Washington; Portland, Oregon; Berkeley and Los Angeles, California. In the East: Pennsylvania Salt Manufacturing Company, Philadelphia 7, Pa.

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Progressive Chemistry for over a Century

FIVE-YEAR OLD MECHANICALLY PLANTED SLASH PINE PLANTATION alongside company-built road in Georgetown Mill Division of Southern Kraft Div. of International Paper Co.

At woodland field headquarters, two men of the Forest Fire Suppression standby crew produce a dozen sections of pipe daily (three each of 12, 18, 24 and 30 inch diameter) of 1-2-3 mix using purchased gravel and sand from the property. They use a half-yard Wonder mixer (Construction Machinery Co., Waterloo, Iowa) and forms acquired from Quin Wire & Iron Works (Boone, Iowa). The concrete forms are kept well oiled, with work facilitated further by a pulley on an overhead I-beam. Concrete pipe costs are halved.

Fire Prevention

In fire control work, the Georgetown division uses towers, airplanes, radio and all modern mobile equipment. This includes such items as a Dodge power wagon equipped with two-way Motorola radio, water tank, and Briggs-Stratton driven Panama pump, all this rolling on Firestone mud-grip tires. Also included are two International K-6 trucks equipped with the same facilities as the Dodge. A Caterpillar D-4 tractor that pulls the Mathis fire line plow, but a Cat D-2 or Oliver HG 42 is utilized to draw a seedling planter. The plow is manufactured by Mathis of Lake City, Fla., and the seedling planter by Lowther of Aurora, Ill.

The headquarters plant has an instrumental installation for measuring fire hazard atmospheric conditions. This includes anemometer, fuel moisture measuring device, a thermometer, and a chart on which is recorded the number of days elapsed since the last one-half inch rain incidence. A weighted factor is ascribed to each of the various readings and their sum total is added to a number from one to five, which is the relative fire danger—the higher the number, the greater the hazard. On a No. 1 day the crews work on road or stand improvement, etc. On a No. 5, the crew stands by for fire call or within hearing of radio.

Seven Districts

Allocation of the division's woodlands into districts is governed primarily by geographical considerations. There are seven of these.

The work program of the PeeDee district may be considered typical of the Georgetown division. Here during 1949 there were 40 miles of road built, $^{2}/_{3}$rds of which were primary. At that rate of construction the ten year program would witness building of 250 to 350 miles of these routes, of which 4/10ths would be primary.

HAVING VARYING TYPES OF SOIL on its lands distributed through eleven states, Southern Kraft Division has *conducted many tests with different equipment incidental to woodlands management. Here is one of its notable contributions in the field—pneumatic tires for light soils. Regular solid steel wheels are there for use when going gets heavy. Southern Kraft Division pioneered seedling planters in the South, now an accepted mechanical device. Modified planters are used now; the original device lays idle.*

In a general area in which there exist quite a number of large acreages in private estates, the characteristic policy of the company in stepping down to local level is expressed in an exclusive hunting lease on 12,000 acres to the Socastee Gun and Fire Prevention Association, an organization composed of residents. The Association pays $600 annually for the privilege, and fire suppression with group cooperation held loss to seven acres in 1948.

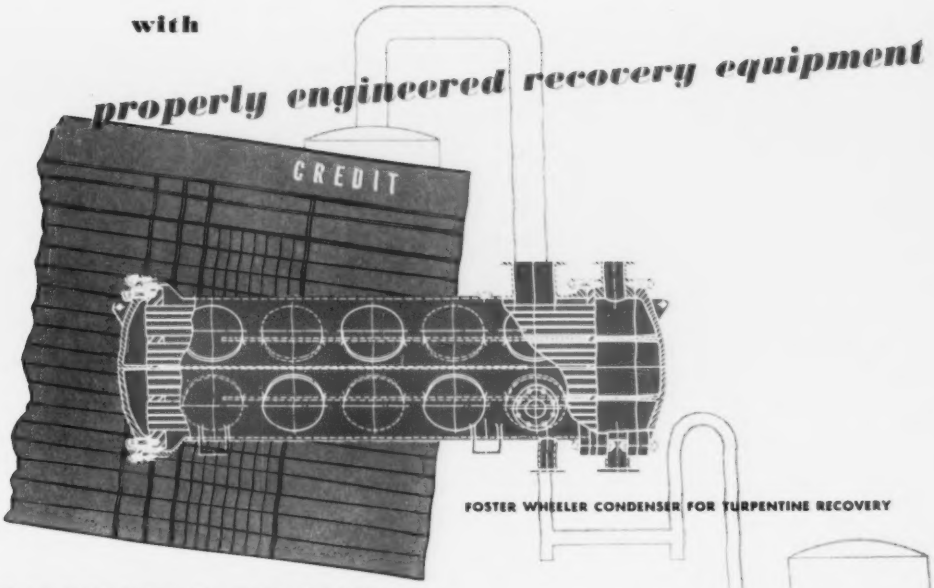
Cutting methods followed in the PeeDee district have been of the harvest type but divided into (1) seed tree cutting, (2) strip cutting. The strips have been 4-chains wide with either 2-chain or 4-chain interspersed strips.

An interesting mechanical feature in pulpwood harvesting here is the use of a Busch high boom arch mounted on Athey tracks, drawn by an International Harvester TD-14 tractor. In operation, an hydraulic cylinder is used to lift the bundles of pulpwood into place, the first bundle going forward and the second thrown against it as the boom is brought back. Cables are caught around the pulpwood in a Busch four leg bridle sling with an iron rod for slipping through small eyes at each cable end. When the load is lifted the cables tighten up. When set down, the cables slacken again. If a pulpwood trailer is not at hand for loading Acme steel bands and buckles are put on to hold the bundle intact. These straps are loosed on loading out and re-used.

adding a PROFIT

with

properly engineered recovery equipment



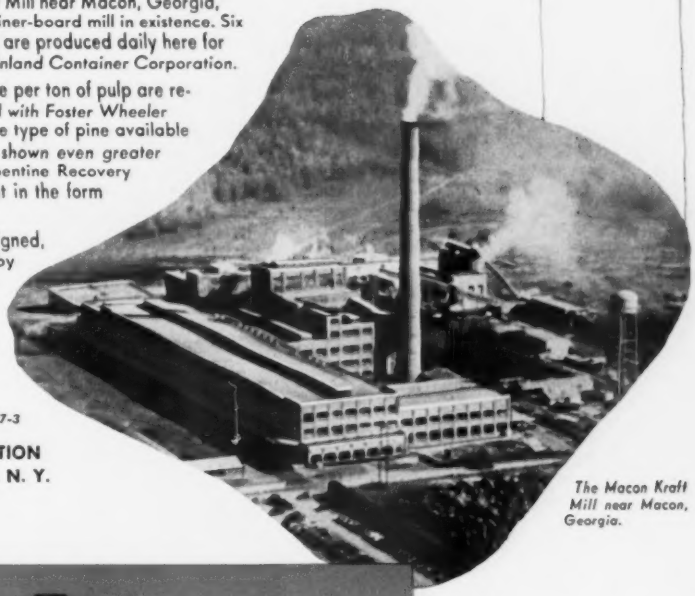
FOSTER WHEELER CONDENSER FOR TURPENTINE RECOVERY

TURPENTINE RECOVERY

Turpentine Recovery is proving a profitable "side" item at the completely modern Macon Kraft Mill near Macon, Georgia, the largest single-machine container-board mill in existence. Six hundred tons of container board are produced daily here for the Mead Corporation and the Inland Container Corporation.

Two to three gallons of turpentine per ton of pulp are recovered at the Macon Kraft Mill with Foster Wheeler equipment—a fine record for the type of pine available in the area. Other areas have shown even greater yields with Foster Wheeler Turpentine Recovery Systems which also recover heat in the form of hot mill water.

Other pulp mill equipment—designed, engineered, and constructed by Foster Wheeler—include Systems for Digester Blow Heat Recovery, Indirect Digester Heating, and Tall Oil Processing.



The Macon Kraft Mill near Macon, Georgia.

Write for bulletins 1D-47-13 and 1D-47-3

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FOSTER WHEELER

Washington Organization Is Taking Form

Informed Washington sources indicate that the recently formed Industrial Expansion Division of NPA's Facilities and Construction Bureau which is headed by Frank R. Creedon will have application to the pulp and paper industry, as will also the divisions devoted to tax amortization in connection with new facilities, building materials, and loans.

The latter will in suitable cases make recommendations to RFC for loans on expanded production moves, but at time of going to press it was understood such RFC loans as recently made in the industry were without benefit of the NPA endorsement, the Creedon set-up not then being in gear. Informed comment believed the industry advisory committee as well as personnel in NPA would review requests for assistance.

As U. S. military policy began to take size and form by debate and the force of events, shortages were still the big worry, with the metals situation sharper, the sulfur solution still about a year ahead, and other chemicals, notably ammonium, feeling a tighter pinch.

New pulp and paper chief, J. G. Ticoulat, from Crown Zellerbach Corp., was well settled in his work with NPA and the Industry Advisory Committee. Gradually others were drifting into the government out of industry. Among these were two men from Hoberg Paper Mills, Green Bay, Wis., H. G. Wintgens, vice president and assistant general manager, and John Maloney, sales manager, were named to industry councils, the former to pulp and paper, the latter to paper and board converted products.

Only one forestry and pulp specialist of note was heading in the opposite direction, out of Washington. This was Egon Glesinger of the forest products division, FAO of UN. With all others in FAO, he had sailed lock, stock and barrel on Italian ships to set up headquarters in Rome, Italy.

IN INDUSTRY NEWS (l to r):
C. A. BUCKLAND, elected President of Inland Empire Paper Co., Millwood, Spokane County, Wash., succeeding A. W. Witherspoon, who also retired as Pres. of Old National Bank of Spokane, but continues as Chairman. Born in Appleton, Wis., Mr. Buckland graduated from Lawrence College in 1911, rose from laborer to Gen. Mgr. and Vice Pres. at Inland.
LESLIE CLEMINSON, whose appointment as Gen. Mgr. of Alaska Pine & Cellulose Ltd. (formerly British Columbia Pulp & Paper Co.), newly acquired division of Abitibi Power & Paper Co., was announced last month. Born in Detroit, he entered industry as Research Chemist at Spanish River, was Mgr. at Smooth Rock Falls and Asst. Gen. Mgr. of all Abitibi mills.
RAYMOND C. GAUGLER, elected President of American Cyanamid Co., New York, succeeding late W. B. Bell. Was Exec. Vice Pres. since 1947.
HARRISON F. DUNNING, appointed General Operating Manager—a new title—for Scott Paper Co., headquarters, Chester, Pa. He was former Gen. Mgr. of Paper Mills only. Directly assisting him will be Paul C. Baldwin, former Chester Mill Mgr., and Forrest Brainerd, former Mgr. of Pulp Mills.

IN INDUSTRY NEWS (l to r):
RUDOLPH PARADIS, only recently promoted to Asst. to Mgr., Brown Corp., La Tuque, Que., went west to resume his former duties as Superintendent of the Sorg Pulp Co., Port Mellon, B.C., with the projected reopening of that mill by Canadian Forest Products Co., of Vancouver, B.C., with Sorg Paper Co. and Perkins-Goodwin as minority owners. Mr. Paradis had only recently been Asst. Kraft Supt., Brown Co., Berlin, N.H.
OLLIE MESSNER, well known in Superintendents affairs, who is Division Mgr., American Coating Mills, division of Owens-Corning Glass Co., Middletown, O.
MOWRY SMITH, JR., of the Personnel Dept., Kimberly-Clark Corp., Neenah, Wis., who was winner of the 1950 Service Award of Neenah-Menasha Junior Chamber of Commerce—thus making him the Twin Cities' "Young Man of the Year." He is in his first term as a Neenah Alderman, also conducts broadcasts explaining tax matters. He earned degrees at Yale and Stanford.
H. O. BARNEY, who has been promoted to Purchasing Agent, Fox River Paper Corp., Appleton, Wis., from Asst. P. A., according to Vice Pres. David E. Oberweiser.

EUROPEAN PULP IMPORTED FOR U. S. MILLS

U. S. wood pulp imports from Europe were substantially higher in 1950 than in 1949, but still far below the record years of the mid- and late 1930s. Sweden alone dumped a record 1,130,075 tons in United States in 1937; 1,014,809 in 1936. Finland shipped 285,798 and Norway, 106,946, in that record year of 1937.

U. S. Receipts of Wood Pulp from Europe in Short Tons
(according to American Paper & Pulp Assn.)

	Sweden	*Finland*	*Norway*	*Russia*	*Austria*	*Italy*	*Czech.*	*Total*
1946	445,114	115,220	0	0	0	0	0	560,334
1947	555,215	223,973	9,577	4,928	0	0	0	793,693
1948	384,576	175,900	13,218	0	1,696	0	0	575,390
1949	265,621	148,903	29,208	0	4,459	0	1,027	449,218
1950	395,757	205,881	28,957	9,773	20,467	551	2,597	665,340*

*Includes 120 from France; 957 from Germany; 265 from Switz.; 15 from Holland.

In 6 mos. of 1945—after war's end, U. S. imported 672,261 tons, all from Sweden.

Norway Sends Observers

Norway's paper and pulp industry, hard pressed for manpower as defense production gets under way, has sent a team of 13 specialists to this country to study modern production methods and techniques, sponsored by the Economic Cooperation Administration. They will visit Virginia, Georgia, Louisiana, Washington, Wisconsin and Michigan mills.

MacMillan Mill Expands

Although Harmac pulp mill, near Nanaimo, B.C., was started up only last August, plans already are announced for expansion. Approximately $900,000 will be spent to build a deep-sea wharf and to increase digester and chip storage capacity according to B. M. Hoffmeister, president of H. R. MacMillan Export Co., owners.

U. S. WOOD PULP IMPORTS

Total wood pulp imports by the U. S., based on data received from the Bureau of the Census, for 1950 in comparison to 1949, were up 35%.

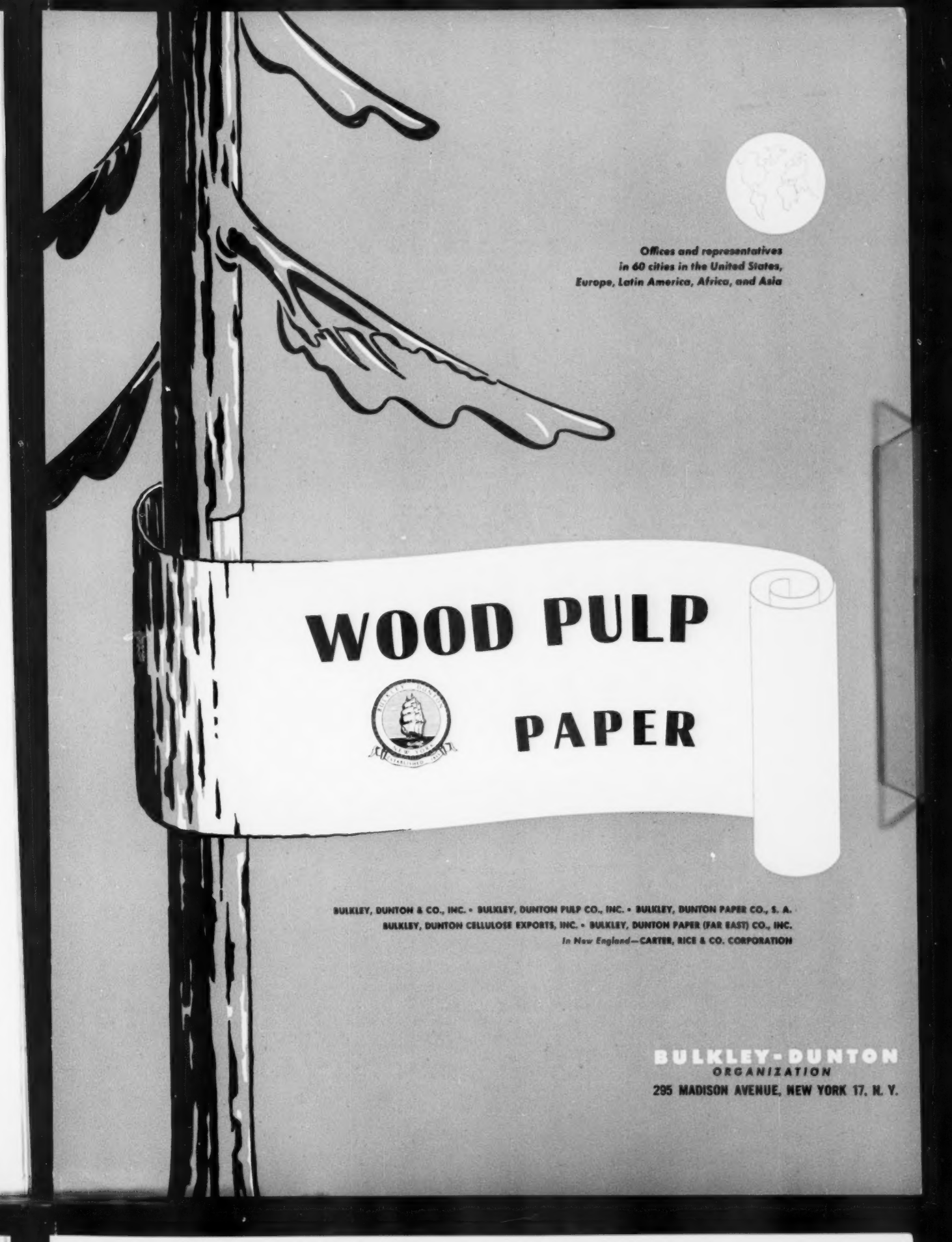
(In Short Tons—From APPA)

	1950	*1949*	*Per Ct. Change*
Canada	1,711,653	1,313,325	+30
Newfoundland and Labrador		559	
Total North America	1,711,653	1,313,884	+30
Sweden	395,757	265,621	+49
Finland	205,881	148,903	+38
Norway	28,957	29,208	— 1
Total Europe*	665,340	449,218	+48
Total World	2,376,993	1,763,102	+35

*Total includes 20,467 from Austria, 9,773 from Russia, 2,597 from Czechoslovakia and smaller amounts from others in 1950; also 4,459 from Austria and 1,027 from Czechoslovakia in 1949.

New Mid-Western Plant

A new 250,000 square foot paper cup and container plant will be erected at Springfield, Mo., by Lily-Tulip Cup Corp., it is announced by Walter J. Bergman, president of the company.



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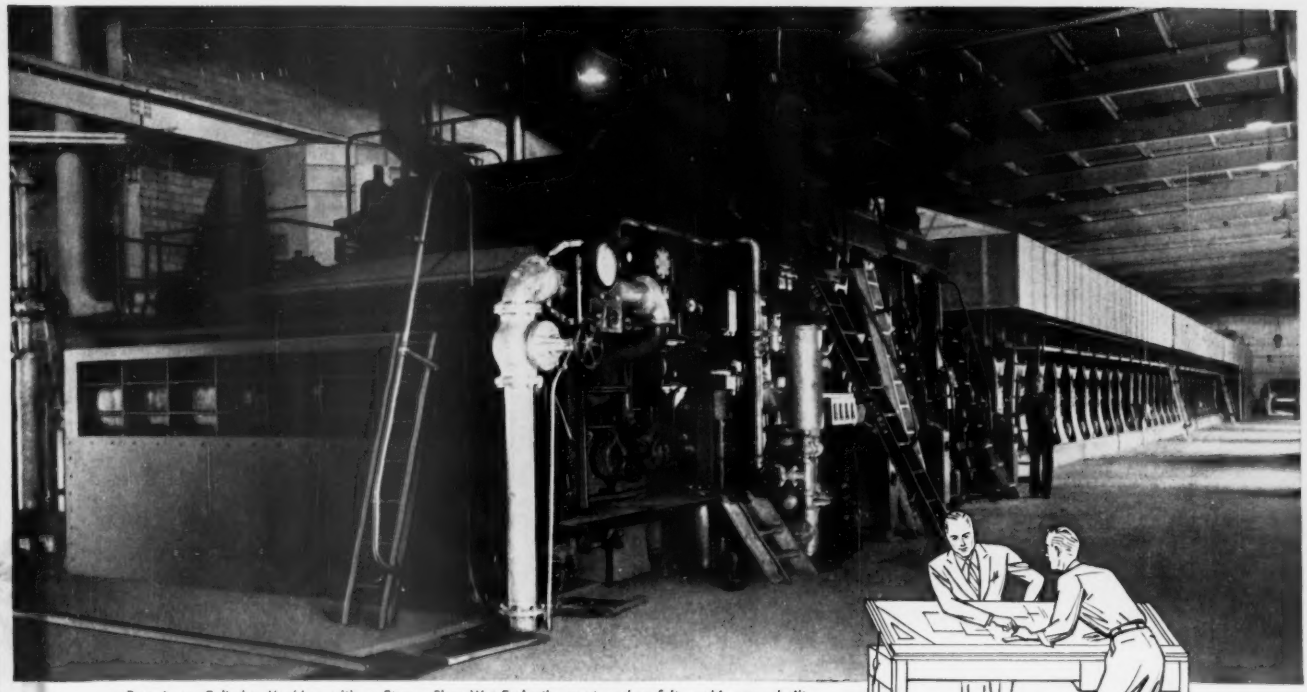

Puseyjones Cylinder Machine with a Stream-Flow Wet End—the most modern felt machine ever built.

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If your 1951 plans call for a new Cylinder Machine or the rebuilding of an existing one, ask a Puseyjones engineer to show you this record:

Each *new* Puseyjones Cylinder Machine has broken former speed limitations *regardless of the product being made.*

Every Cylinder Machine *rebuilt* by Puseyjones, has reached and exceeded expectations—with better sheet quality, higher speed possibilities and furnish economies.

Outstanding Cylinder Machine improvements, like the Goldsmith Stream-Flow Vat System, are available on new or rebuilt machines. Machine change-overs are often accomplished in several steps – first, Stream-Flow Vat Systems with Flow Spreaders, later Vacuum Cylinder Molds, followed by Press improvements and added Dryer capacity.

Whatever your product may be—container board, folding boxboard, bristol and index, cylinder paper, felt, or special products – Puseyjones engineers will tailor the equipment to meet your needs. Write or call us today.

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THE SIGN OF TRADE MARK SUPERIOR QUALITY

NATIONAL CONVENTION PLANNERS

Superintendents Going West for First Time

SEATED ARE CHARLES E. ACKLEY (left), National President of Superintendents and Paper Mill Supt., Crown Zellerbach, West Linn, Ore., and GUS OSTENSON (right), Mgr. of Paper Mfg., Crown Z. Camas, General Convention Chairman for 32nd National Supts. conclave—first ever to be held in Far West—June 24-28 at Multnomah Hotel, Portland, Ore.
Standing (l. to r.): L. D. McGLOTHLIN, Kraft Supt., Camas, Advisory member, Convention Committee; H. RADFORD RUSSELL, Asst. Supt., Everett Pulp & Paper, Program Chairman; MERRILL E. NORWOOD, Paper Supt., St. Helens Pulp & Paper, Mill Visits Chairman; GERALD F. ALCORN, Engineer in charge new Construction, Weyerhaeuser, Longview, Advisory member.

SEATED ARE LES R. (SPUD) HARTMAN (left), Chairman of host Pacific Coast Div. of Supts. for National Convention; Co-Chairman of the Convention Program. (He is Maintenance Supt., Pulp Div., Weyerhaeuser, Everett.) HARRY E. WESTON (right), of Chicago, Secretary-Treasurer of Supts. Assn., who went west to help committee. Behind them (l. to r.): ROBERT T. PETRIE, Black-Clawson Coast Mgr. and Convention Chairman for Local Transportation; ROBERT D. BAER, Griffith Rubber Mills Sales Rep. and Co-Chairman of Ladies Program; CLARENCE W. RICHEN, Chief Forester, Crown Zellerbach, Portland, Chairman for Woods Trip, and WALTER SALMONSON, Draper Felt Rep., Chairman of Entertainment.

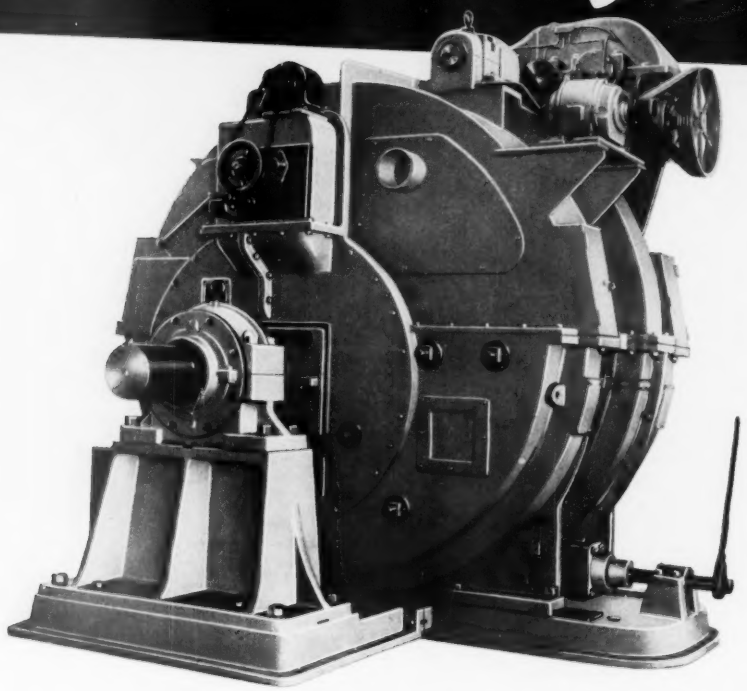
REPEATERS--TWO NATIONAL CONVENTIONS IN TWO YEARS

"WORKHORSES" on National Convention Committees on Pacific Coast are these six stalwarts—the three above and three at top right. They served in key spots for TAPPI National Convention in Portland, Ore., just two years ago—now they have loyally answered the call again for Superintendents National Convention scheduled at same city on June 24-28.

Left to right (above): JOHN M. FULTON, Mgr., Pacific Coast Supply Co., Co-Chairman for Ladies Events—he arranged these events in '49, too; H. A. "GOB" DES MARAIS, Coast Mgr., General Dyestuff, again Reception Committee Chairman; GUS OSTENSON, Mgr. Paper Mfg., Crown Zellerbach, Camas, now Convention Chairman, headed Mill Visits in '49 (and at top right) LEROY M. SHANAMAN, Dist. Mgr., Penn Salt, again Golf Chairman; ROBERT M. TRUE, General Dyestuff Northwest Mgr., again Finance Chairman; and ZINC A. WISE, Vice Pres., Griffith Rubber Mills, again Publicity and Travel Chairman.

OTHER KEY MEMBERS (l. to r.): BURKE MORDEN, Vice Pres., Morden Machines Co., Housing and Registration Chairman; HERBERT BECK, Northwest Mgr., National Aniline, Vice Chairman, Entertainment; and FRED R. ARMBRUSTER, Northwest Mgr., Dow Chemical, Advisory member of Committee.
Mr. Armbruster has served since 1944 as the Secretary and Treasurer of the Pacific Coast Div. of the Supts. This position was held from 1937-44 by Albert S. Quinn, Pres. of Stebbins Engineering Corp., and by H. A. Des Marais, General Dyestuff Coast Mgr. from 1933 (year the Division was founded) until 1937.

Reduce Your Labor Costs 70%



Another famous *Appleton Machine Company* product, this outstanding modern grinder designed for all grades of groundwood pulp, can cut your operating labor costs up to 70 per cent!

The Roberts Pulpwood Grinder is a continuous, high-speed ring-type machine that replaces 3 or 4-pocket units with resulting economy. High caliber operating means lower cost pulp with less waste. Don't let inefficient, out-of-date equipment eat up your profit margin!

The Roberts Pulpwood Grinder's many operating advantages are outlined in detail in a free bulletin that you can have today. Write now for complete details on this machine and the *Appleton Machine Company's* complete line of paper-making equipment.

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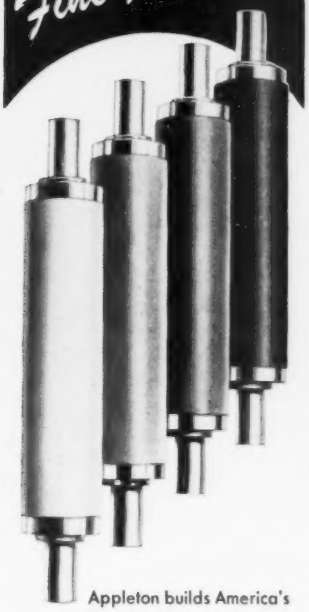

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NEW BRUNSWICK EXPANSION

Continuing her rivalry with Canada's west coast province in pulp and paper mill expansion, New Brunswick at the eastern extremity of the nation launched a project this month representing an expenditure of $20,000,000.

The Canadian maritime province thus retains its position with British Columbia as location for most of Canada's new mill construction—a position solidified during the past year or so with completion of Fraser Co.'s mill at Newcastle and the recent expansion of Bathurst Power & Paper Co., including raising the capacity of the kraft mill and opening of the new semichemical pulp and corrugated board plant. British Columbia's contribution to Canadian expansion is represented by H. R. MacMillan Export Co., new sulfate mill at Harmac, which will have its bleachery in operation in April; Columbia Cellulose Co. at Watson Island, now starting production, and Elk Fall Co.'s newsprint mill, now rising at Duncan Bay.

The New Brunswick project represents major expansion of an old-established operation—Saint John Sulphite Ltd. K. C. Irving, president and managing director, announces that the capacity of the present mill, which manufactures prime bleached sulfite pulp at Union Point, Fairville, is being increased to 200 tons from 130. In addition, plans are being completed for a new 250 ton bleached kraft pulp mill.

Mr. Irving says he hopes that the new mill will be built at Fairville adjoining the present mill, but this will depend on arrangements for water supply and other matters. Those familiar with Fairville tell PULP & PAPER that the restricted area of the present site will involve considerable engineering ingenuity when expansion is undertaken. The company will have extremely limited space for new facilities.

The existing mill requires some 6,000,000 gallons of water daily, drawn from the Spruce Lake system. Saint John Sulphite Ltd. has applied to the city of Saint John for 23,000,000 gallons of water a day for the new mill, which would have to be drawn from the Loch Lomond system, which serves the city proper, and piped across Reversing Falls bridge.

During the past few weeks engineers from New York have been in Saint John investigating the site and preparing recommendations.

In 1890 the first pulp mill was built at Union Point by George Scammell Cushing, a grandson of one of the earlier enterprisers, from Maine. In 1912 the mill was sold to Oxford Paper Co. of Portland, Me., and Bryant Paper Co. of Kalamazoo, Mich., which formed the Nashwaak Pulp & Paper Co. In 1934 the property was taken over by Port Royal Pulp & Paper Co., and sold in 1946 to Mr. Irving.

CELLULOSE USE IN CARPETS

The carpet-manufacturer has been able to obtain only one-fourth the amount of synthetic yarns presently needed, according to best estimates PULP & PAPER can discover. The use of synthetic yarns, many of which are made from cellulose fibers, was highlighted in February when two of the largest manufacturers, Bigelow-Sanford, and Alexander Smith, withdrew from the wool market in protest over prices. Carpet wool has risen from 65 cents a pound a year ago to around $2.35 a pound; the acceleration of the rise is indicated by a $1.67 price at the end of 1950! Most carpet makers had tried to offset the cost factor by raising their own prices; generally the product has risen 46%. But retailers report customers not interested and distress sales are in evidence.

The use of cellulose fibers was definitely heralded at the home furnishing shows in Chicago in January when almost all companies offered limited lines of wool-synthetic and all-synthetic carpeting. At the midsummer mart, same place, only three firms had offered such lines. Thus the interest is developing fast, even though, according to estimates in the trade, less than 5% of 1950 carpets and rugs were in synthetics. Some venture that the present production carries one-third of its yardage either in synthetic yarns or part synthetics. Others won't peg it that high, but all admit it's rising.

Carpet firms expect a 70,000,000 yard production this year against 85 million in 1950, but it appears as if they can't go into the wool market without appreciably raising prices and that looks disastrous, even assuming it would be granted by ESA.

But when the carpet and rug industry adjusts itself again for the consumer demand it seems likely it will still be looking toward synthetics which offer several more advantages than lower prices. And thus far the price of high grade wood pulp for rayon yarn is competing more than successfully with cotton linters, which have gone sky high due to a low cotton crop. It is claimed that present wool inventories in the industry will allow for only several more months' operation.

Dissolving pulp sources agree the carpet and rug trend just now is of interest. PULP & PAPER finds from a quick sampling of retail outlets—Mrs. America approves synthetic fibers in rugs and carpets on basis of wear, maintenance, style and color and price.

Ammonia in More Mills

Liquor Burning at Badger and Interlake

Key technical men, engineers and mill executives from the pollution-conscious Wisconsin pulp and paper industry got an eyeful of encouragement in waste liquor burning Jan. 26.

On that day, they gathered at the invitation of the Badger Paper Mills, Inc., at Peshtigo, Wis., to witness the demonstration of experimental burning of 60% concentrated spent calcium base sulfite liquor in two boilers—two regular Badger mill boilers rebuilt for these experimental burning trials.

Two weeks later, the deadline date for this issue, PULP & PAPER's Middle West editor, again checked on the progress being made in this important experimental burning. He was told:

"Based on our own observations and feeling the results we are obtaining are very encouraging," stated E. A. Meyer, president and general manager of Badger.

Wisconsin Takes Ammonia Lead

In experimental substitution of ammonium base sulfite cooking for orthodox calcium base, the Wisconsin mills are two-up on the Washington-Oregon mills. Already, ammonia waste liquor from the Wausau Paper Mills of Brokaw was shipped across state and evaporated in the General American Rosenblad switch-system evaporator and burned in the Babcock & Wilcox furnace at Consolidated Water Power & Paper Co.'s Interlake mill in Appleton. As this issue went to press, Consolidated was starting up its own Interlake mill on ammonia for more thorough and longer burning tests.

At New York Paper Week, Lauren LaFond, sulfite superintendent, Crown Zellerbach, Lebanon, Ore., mill was making the first formal report on the results of ammonium base cooking in that mill sponsored by C-Z and Soundview Pulp Co. Experimental evaporation and burning were to follow at Lebanon, but these stages have not yet been reached. His report on pulp quality was favorable and also favorable in regard to effects on mill equipment of substituting NH_3 for Lebanon's milk of lime system.

Another Wisconsin mill, Consolidated's larger sulfite mill at Wisconsin Rapids, ran all six of its digesters on NH_3 for a ten-day period ending Feb. 3 and the tests showed slightly higher yield of pulp and corresponding reduction of screenings. But these fell short of additional cost over this mill's use of limestone.

State Approves Plans

The Wisconsin state pollution committee has approved plans by Consolidated at Interlake, Hoberg Paper Mills and Northern Paper Mills to install commercial scale waste liquor evaporating and burning plants (see our Feb. issue, page 29). Interlake already has a 7,000-gal. waste liquor collection tank and will spend an additional $25,000 on its boilers. Northern and Hoberg expect to spend

LAUREN LAFOND (left), Sulfite Supt., Lebanon, Ore., Mill, who assigned Paper Week duties of first formal report on joint Soundview Pulp-Crown Z trials of NH$_3$ Pulping.

LAURENCE W. MURTFELDT (right), Sulfite Supt., Consolidated's Wisconsin Rapids, Wis., Mill who ran all six digesters on NH$_3$ for ten days.

$3,000,000 on all additions. Rhinelander Paper Co., although not under committee orders, already has contracted for evaporation and burning equipment.

All four of these mills are preparing to install General American switching type flat plate evaporator systems manufactured under the Rosenblad patents. Sometimes known as the Conkey flat plate heating surface evaporators they are designed especially for those evaporation problems where scale is deposited on the heating surface during evaporation due to inverted solubility of dissolved salts.

The first of several commercial units will go into the Rhinelander job which of the four is thus far the only one featuring full plans for commercial by-products such as yeast and others not announced as yet. This installation will take care of 75 tons per day out of the total daily tonnage of 105 tons of pulp. The other three installations are for disposal only, and all handle the full tonnage of the specific mill. At Consolidated it is 140 tons, at Northern 130 tons, and at Hoberg, 120 tons.

What Badger Mill is Doing

What is taking place at Badger Paper Mill is this: Previous tests by other mills indicated possibilities so Badger technical men went to work on the problem with Babcock & Wilcox and the Sulfite Manufacturers' Research League.

They designed means of changing the existing power plant. Primarily, they have covered the grates of two coal burning furnaces which are fired with coal from the front end. They have placed the burner for the liquor at the rear end of the combustion chamber and sprayed it into the fire chambers above the covered grates.

This covering can be removed to allow a return to coal firing. The big point in the current tests is the fact that the concentrated liquor is burned alone and without the sustaining benefit of combustion induced by some other free-burning fuel like coal or oil.

Incoming air is pre-heated to a high-temperature before entering the liquor chamber. The Badger tests are with 60% concentrated liquor (60% of the liquor is solids).

The present tests will be continued to learn a number of things, including: Velocities, temperatures, circulation within the burning chamber and other allied factors.

One of the things they hope to learn more about is the actual industrial fuel value of the waste sulfite. Mr. Meyer informed us that so far no figures are conclusive. He says, "We have no idea whether it costs more or less to burn this fuel to operate our boilers."

There is a significant phase of the current tests. Satisfactory combustion was obtained while operating at the extreme low of 35% boiler readings. At 150% the boilers would be operating at peak efficiency. This showed that combustion can be obtained with the liquor under poor operating conditions.

The primary difference between the Consolidated Water Power & Paper Co., Appleton, Wis., installation and that at Badger to burn waste sulfite liquor without fuel (see PULP & PAPER, Jan. 1951 issue) is in the 40 by eight-foot tunnel boiler which is simply attached to the wall of the larger boiler. This brick-lined boiler or oven makes possible very intense heat—around 2600 degrees F.—in a relatively small space, thus putting the liquor in condition for burning as it is emitted from the Babcock & Wilcox Y-jet steam atomizing burner. The burning is further enhanced by air forced by fan through tangential slots in the small oven attachment. The fan is furnished with air ducts and the slots are adjustable by means of horizontal planes. The single Y-jet is the chief contribution to the installation of Babcock & Wilcox. The burning attachment at Wisconsin was designed by the Badger technicians.

Some observers believe that the successful burning of liquor without auxiliary fuels will result in maintenance of interest on the part of the government in allowing priorities for stream improvement equipment—this because all fuels may become extremely scarce in the coming mobilization effort.

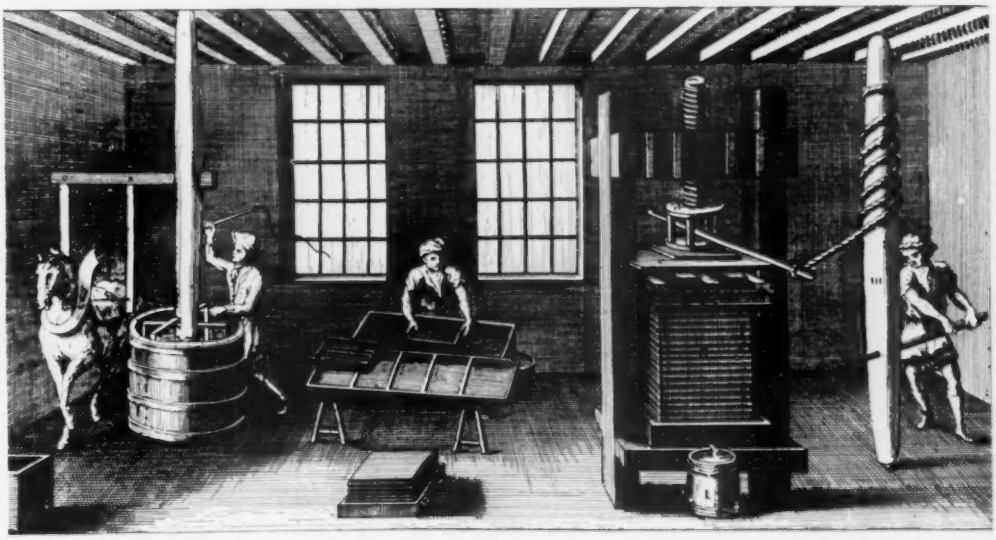

Illustration from the Bettmann Archive

When Paperboard was Made the Hard Way

Nearly two hundred years ago in France, heavy paperboard was used primarily for two purposes —for hat boxes and for the binding of books. The process of making the heavy paperboard from rags was shown in the above illustration in the French Encyclopedia, published by the Academy of Sciences in Paris in 1763.

It was sixty-five years later, in 1828, that G. A. Shryock developed at Chambersburg, Pa., a method of making paperboard from straw. "Many predicted," he wrote years after, "that these boards would become one of the indispensable products of the world." But straw was limited in its usefulness. Thirty-seven years later Benjamin Tilghman, a Philadelphia chemist, invented, in 1865, the sulphite process of manufacturing wood pulp. He was the first to see the far-reaching effect of this method in making plentiful paper possible. Such long, slow strides led eventually to the vast paperboard industry of today. Now paperboard is so extensively used for shipping containers and other purposes that it accounts for practically half the total production of the great pulp and paper industry.

The dramatic story of paper is told in the sound-and-color film, "Paper — Pacemaker of Progress," and in a book under the same title. Both are presented by F. C. Huyck & Sons as a tribute to the Paper Industry. The book will be sent free upon request.

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$8,000,000 IN IMPROVEMENTS FOR GARDNER

Just 50 years ago, in April 1901, the parent company of the present Gardner Board and Carton Co. started making paperboard on a salvaged 85-in. machine, a rescued relic from a burned out paper mill, at Middletown, O.

From the original Colin Gardner Paper Co., other affiliates were formed and finally merged in the present company. Machines were added in 1906, 1909, and 1917—in 1932, the Lockland, O., mill was taken over. New machines and new improvements continued, subsidiaries were acquired.

The company today is a far cry from the little one formed 50 years ago to make a trifling 30 tons of board a day. Capacity has soared to 600 tons per day. The company operates two complete mills in Middletown and one in Lockland, with individual power plants. These house five large machines. Also there are three carton fabricating plants, making billions of multi-colored folding cartons. Number of employes has grown from 48 to 1,800.

Edward T. Gardner, president, survives from the group of original principals. He is shown in the accompanying picture with two other 50-year veterans who are key executives today. Executive vice presidents are Colin Gardner, Jr., and Walter E. Sooey, among whose achievements were the development of clay coating and coated Lithwite Board. Robert B. Gardner is senior vice president. He and Colin, Jr., are 40-year men. Some $8,000,000 has been spent by the company in the past five years on expansion and improvements. The Shartle-Dilts Hydrapulping and refining systems are features here. Two of the first rotagravure presses to be used in the carton industry were purchased for a half million, one of the most important recent developments in this field. Each of these presses combines three major fabricating operations—multicolor printing, cutting and creasing, and stripping—at a speed of 500 f.p.m. Still in development stage, the press indicates tremendous future possibilities.

The major expenditures in the $8,000,000 program are as follows:

1. New retail box plant (Lockland, O.) $1,500,000—$2,000,000, now under construction.

2. New Power Plant (Middletown, O.) $1,000,000, completed and in operation.

3. Two Sperry Rotogravure Presses, 3 & 4 color (Lockland) $500,000, now in operation.

4. Hydrapulper and Hydrapulper building (Middletown) $500,000, now in operation.

5. New locker rooms, plant conference room and warehouse (Middletown) $300,000, soon to be completed.

6. Expansion of General Office including construction of modern laboratory and engineering department (Middletown) $250,000, now under construction.

For the Middletown Power Plant the major items of machinery and equipment are:

Combustion Two-Drum type VU boiler with capacity of 110,000 pounds of steam per hour at 625 psi and 725° F. total temperature—made by Combustion Engineering-Superheater, Inc.

Coal Handling Equipment—by Fairfield Manufacturing Co.

Ash Handling Equipment (Nuveyor)—by United Conveyor Co.

Feed Pumps—by Ingersoll-Rand Co.

Feed Water Treatments—by Cochrane Corp.

The 4,000 kw. Condensing Turbo-Generator with throttle steam at 600 psi—by General Electric.

Fly Ash Precipitator—by Aero-Tec Corp.

Induced and Forced Draft Fans—by Sturtevant Co.

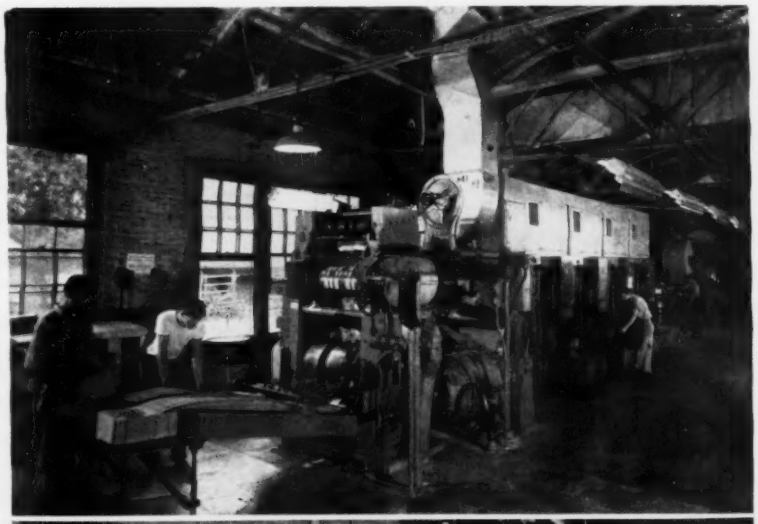
Switch Gear—by Westinghouse Corp.

The Hydrapulper machinery and equipment was manufactured by the Shartle Brothers Machine Co., Division of Black-Clawson.

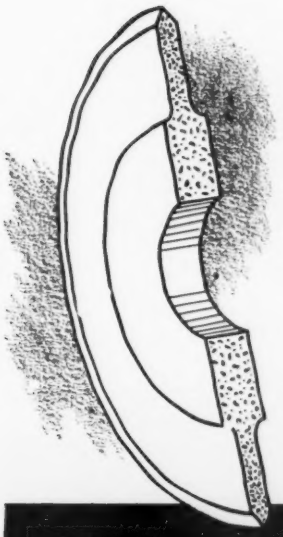
The two new Rotogravure Presses were both made by Sperry. One of these units is 26 in. wide, the other 40 in. Both are operated at speeds up to 620 ft. per minute, will handle 72 in. diameter rolls and are equipped with automatic butt splicing units which permit uninterrupted operation. The 26 in. machine has 4 printing cylinders and the 40 in. machine has three. It is planned that these two presses, which combine all major fabricating operations including multicolor printing, cutting, creasing and stripping, will use the complete output of the paperboard machine.

Other items which do not appear in the major expenditures recapitulation

TOP—ONE OF THE TWO NEW $250,000 ROTOGRAVURE PRESSES recently placed in operation in Carton Plant of Gardner Board and Carton Co. at Lockland, Ohio. These presses combine three major fabricating operation—multicolor printing, cutting and creasing, and stripping—and operate at over five hundred feet per minute.



BELOW—CLOSE-UP OF THE NEW SHARTLE-DILTS HYDRAPULPER at No. 1 Mill in Middletown, Ohio, of the Gardner Board and Carton Co. At one time, with 8500 gallons of water it will process approximately two tons of stock. Blades projecting up from swift moving disc at bottom of tank impart a strong circular motion which separates fibers and hydrates each individually.



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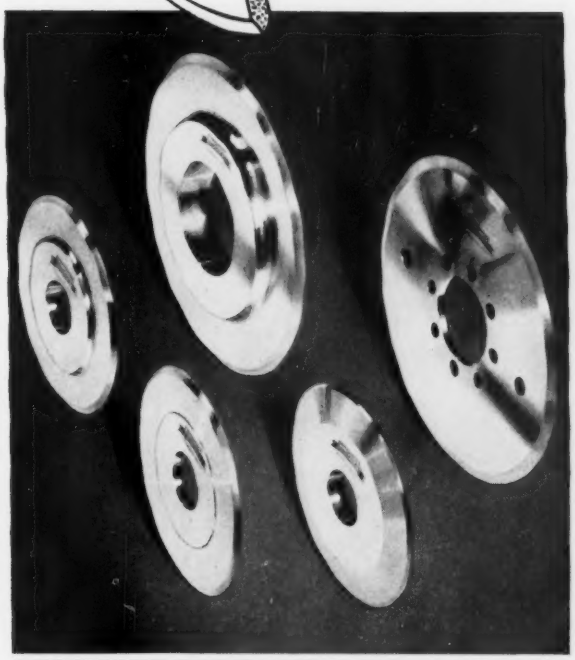
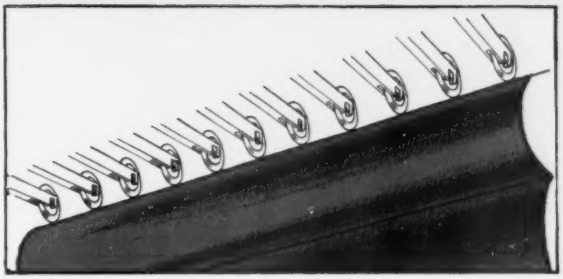


Simonds Slitters are made from *forgings* . . . which give a dense and uniform grain structure around the slitter rim. And there's where you get the *toughness* that gives you the longer lasting edge.

So if you're shooting for "high score" on score-cutting, then Simonds "Red Streaks" are the slitters for *you.* These forged slitters are tough enough not to flatten out, and hard enough to keep their keen cutting edges far longer.

And that's not all: Simonds special heat-treating and precision grinding methods add up to longer life between grinds, which means highest production per machine, and lowest slitting cost. So ask your Simonds Distributor about "Red Streak" Forged Slitters in all standard sizes.



SIMONDS
SAW AND STEEL CO.
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Branch Offices in Boston, Chicago, San Francisco and Portland, Ore.
Canadian Factory in Montreal, Que.

above, are a new 133 inch Beloit rewinder which can rewind 72 inch diameter rolls, two new Sveen-Pederson Save-Alls, and new wet-end drives, manufactured by General Electric.

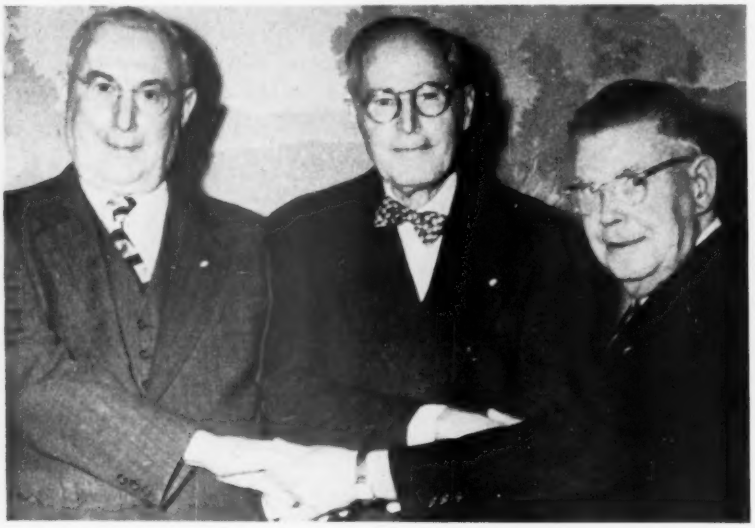
In 1947 Gardner became co-owner with Champion Paper & Fibre of a new subsidiary, Dairypak, Inc., which now has a plant in Cleveland and another being built at Athens, Ga. Gardner pioneered in paperboard milk bottles but does not make bottle stock, which Champion does. Clarke Marion is Dairypak president.

The Manchester Machine Co., with roll grinders, lathes, milling machines and equipment making a variety of paper mill and other equipment, is a wholly owned Gardner subsidiary.

Other executives of Gardner include Wellmore B. Turner, chairman; Edward T. Gardner Jr., vice president, finance; and Colin Gardner III, vice president, operations. Arthur R. Harvey is chief engineer and a director of the company.

For operations, Harry E. Hadley is mill manager at Middletown and Duncan S. Brown at Lockland (Cincinnati). John Ditmyer at Mill No. 1 and J. B. Brock at Mill No. 2 are Middletown superintendents and J. Shartle Brookover is general superintendent at Lockland where Andrew J. Westendore is board mill superintendent. John C. Hanchett is plant engineer at Middletown and Harold Bennett at Lockland. Power engineers are Paul Morrison at Middletown and Alfred Clegg at Lockland. Brainerd E. Sooey is chief of quality control and Harold C. Fisher, director of chemical research. W. W. McIntire is director of purchases.

OVER 150 YEARS OF INDUSTRIAL LEADERSHIP AND SERVICE in Gardner Board and Carton Co. are represented in this picture (left to right): JOHN DITMYER, Superintendent of Middletown, O., Mill No. 1; EDWARD T. GARDNER, President and General Mgr. of company, and ALFRED S. CLEGG, Chief Power Engineer of Lockland, O., Mill. Mr. Clegg is also Vice Mayor and a Republican leader in Lockland. He and Mr. Ditmyer recently received diamond-studded 50-yr. service pins from Mr. Gardner at luncheon celebration. Mr. Gardner himself, and Clarence Jordan of Lockland are only others in company out-ranking them in service.



New Pulp Firm Named Alaska Pine and Cellulose Ltd.

One day last summer as he walked along Hastings street in Vancouver, B.C., M. J. Foley, executive vice president of Powell River Co., was surprised to see Douglas White Ambridge, president of Abitibi Power & Paper Co., Toronto.

"Tell me," said Mr. Foley, "what brings you to the coast?"

"To tell the truth," whispered Mr. Ambridge, "I am seeking a rare species of rose that blooms only in British Columbia."

A few weeks ago Mr. Foley learned that Mr. Ambridge had "plucked the rose" and that its name was B.C. Pulp & Paper Co.

That's the way Harold Foley, president of Powell River Co., recounting his brother's experience, told about Abitibi's acquisition of one of the west coast's old established companies, in introducing Mr. Ambridge as his successor as chairman of the executive committee, Canadian Pulp and Paper Association, at a luncheon for more than 1,000, in Montreal.

Name of the new coast setup is to be Alaska Pine and Cellulose Ltd., and the old name "B.C. Pulp" disappears.

Mr. Ambridge becomes chairman of the board of the new company and Leon J. Koerner, president and founder of Alaska Pine Co., whose timber operations will be integrated with those of the Port Alice and Woodfibre (B.C. Pulp) mills, continues as president of the organization. Presumably the top personnel of the Alaska Pine sawmill group will be unchanged, but Leo Cleminson of Toronto has already been named general manager of the pulp setup.

MILTON R. BAILEY, vice president of Bulkley-Dunton Pulp Co., has sold his farm northwest of Kalamazoo, Mich., making his home year-around in the city except for trips.

Personals

News About Industry People From Coast to Coast

HERBERT D. WARNER, chairman of Gulf States Paper Corp., Tuscaloosa, Ala., has been named a member of the board of the Alabama Great Southern Railroad.

JAMES A. MAY, assistant to general manager of the Macon Kraft Corp., Macon, Ga., recently received his 25-year pin in recognition with long service with Mead Corp. Mr. May has been with Mead Corp. 31 years.

CECIL C. PARVIN, general superintendent of Nekoosa-Edwards Paper Co., Port Edwards, Wis., visited mills on the Pacific Coast in late January and early February. Interested primarily in the kraft mills, he visited Fibreboard at East Antioch, Cal.; St. Regis in Tacoma; Weyerhaeuser at Longview; and the Camas and Lebanon plants of Crown Zellerbach.

R. W. HOOKER, vice president in charge of sales of the Hooker Electro-chemical Co., was re-elected president of the Chlorine Institute, Inc. at its annual meeting in New York City, just two days after he was elected first vice president of the Compressed Gas Association, Inc. at its annual meeting, also in New York.

S. T. "PAT" DOLAN, machinetender, has joined the pulp and paper division of Potlatch Forests Inc., Lewiston, Idaho. He was formerly with Crown-Z, Camas; Pacific Mills, Ocean Falls; Abitibi Power & Paper and St. Lawrence Paper Co., both the latter in Eastern Canada.

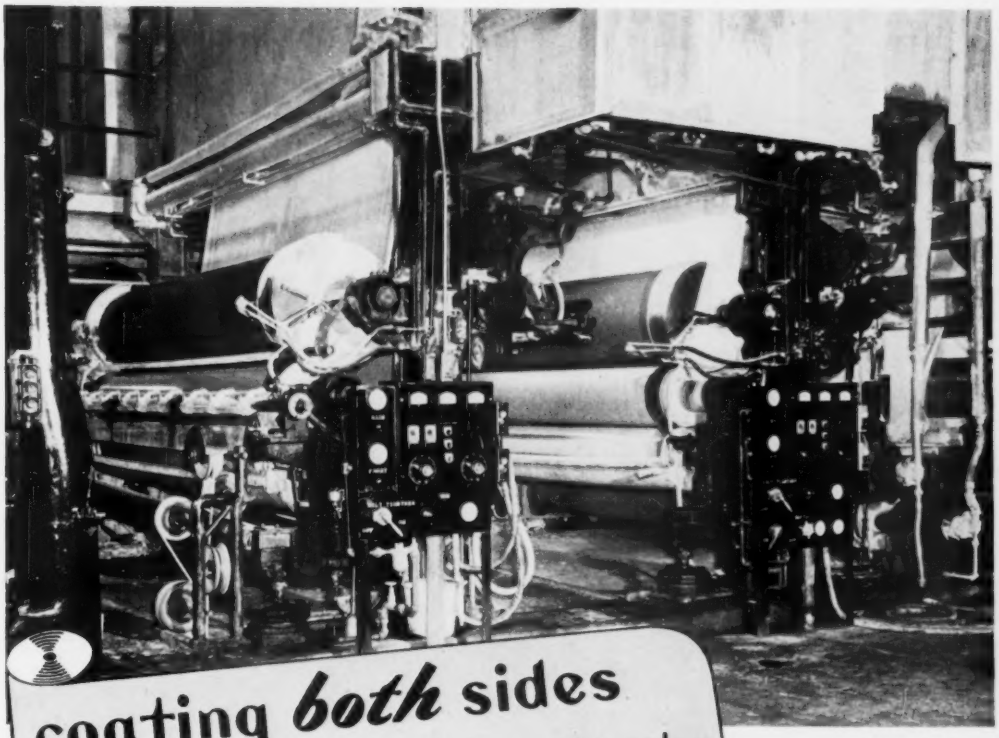
G. OTTO ORTH, JR., for the past seven years assistant to Arthur J. Norton, consulting chemist who makes headquarters at Seattle, Wash., has set up his own consulting business and chemical laboratory at his home in Seattle.

STANLEY HANDFORTH, chemical engineer, formerly of Tacoma, Wash., one of four DuPont explosives department men who were responsible for construction of the atomic energy plant at Hanford, Wash., in World War I, died recently in Wilmington, Del. He was a cousin of Brian Shera, western sales representative for Penn Salt Mfg. Co.

JOSEPH L. GUTHRIE recently joined the engineering staff of St. Helens Pulp & Paper Co., St. Helens, Ore. He is mechanical engineering graduate of O.S.C. and has been carrying on design work and sales engineering for Hydraulic Power Equipment Co., Portland, prior to affiliating with the paper firm.

ERICE L. HAMMACK, recently promoted to acting timber superintendent of St. Helens Pulp & Paper Co., St. Helens, Ore., was named timber superintendent Feb. 1, according to *MAX R. OBERDORFER*, executive vice president and mill manager.

F. HENRY SAVAGE has been promoted to a newly created position of assistant general sales manager of International Paper Co. says Richard C. Doane, vice president and general sales manager. Replacing Mr. Savage as book and bond division sales manager is Lamar M. Fearing, manager of the New York office of this division.



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Machine coating of high grade magazine paper at the rate of 100 tons per day is the notable achievement of a leading manufacturer operating the amazingly efficient WALDRON "Syncroset"* Coating System. Utilizing a specially designed rotogravure offset method in operation, it precision meters fine coatings of high solids content in a uniform application onto the surface of the paper on both sides, completing the process at a speed of 900 ft. per minute. This WALDRON "Syncroset"* process makes possible the economically practical production of a fine texture surface suitable for high speed four-color printing.

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BURNING WOOD REFUSE

SPREADER STOKER IS SUCCESS

By CONANT DODGE, H. A. SMYTH and L. R. GUTHRIE

Engineering Dept., Tacoma, Wash., Headquarters, Weyerhaeuser Timber Co.

AT TACOMA (l to r):

Top—CONANT DODGE, Chief Design Engineer, Central Engineering, Weyerhaeuser, who gave paper published here; BRYAN L. RAUSCHERT, Res. Engineer, Rayonier, Port Angeles, who talked on stainless linings for digesters; C. J. JUDSON, Eugene Water Board, also talked on burning waste wood.

Middle row—ELLIOTT WOODRUFF, Chief Chemist, Rayonier, Port Angeles; JOHN BENNETT, Development Engineer, Central Research, Rayonier, Shelton, Wash., and ORVAL ANDERSON, Maintenance Engineer, Central Research, Rayonier, Shelton, who made meeting arrangements.

Below—LANCE CROSBY, Process Development Engineer, Central Research, Shelton, another Rayonier man who helped plan the meeting; JOHN SCHUH, Design Engineer, Longview Fibre Co., who gave a paper, and R. E. THIEME, Tech. Director, Soundview Pulp Co., Chairman of the host TAPPI Section.

ABOUT PAPERS AT ANNUAL COAST ENGINEERING CONFERENCE

Burning of all kinds of wood refuse, including wet wood now coming from the new hydraulic log barkers, was a prime subject at the annual Pacific Coast Engineering Conference sponsored by the Coast TAPPI section and in Tacoma, Wash., Feb. 6.

The story of successful completion of an experiment with a Combustion Engineering-Superheater Inc., stoker spreader at Longview, Wash., operations of Weyerhaeuser is told in the paper published on this page. It is a frank statement of the good and bad side of this pioneering venture, and was presented at the meeting by Conant "Connie" Dodge, chief design engineer for the central engineering department, which serves pulp as well as other divisions of the company. Ultimately, the advantages of the spreader stoker for burning a wide variety of refuse from intensively integrated operation such as exists at Longview were proved to be both important and numerous.

C. J. Judson from the Eugene, Ore., Water Board also gave a paper on a modern and much more elaborate spreader installation for utilizing the large amount of waste which is available in that region—in a county which boasts of more sawmills than any other like area in the world. The Longview installation discussed by Mr. Dodge is much simpler in comparison and is one that can be easily adapted to existing pulp and paper mill power plants.

John Schuh, Longview Fibre Co.'s supervisor of engineering design and planning, told of problems in motor applications in paper mills, and Bryan Rauschert, resident engineer, Port Angeles mill, Rayonier Inc., told of three years' experience with the first stainless steel-lined digester ever installed in a pulp mill and one of only two in the sulfite industry. PULP & PAPER published an illustrated article on this digester fabricated by A. O. Smith Corp. with spot-welded Type 316 stainless in its Feb. 1947 issue. Mr. Rauschert says its advantages were established for his particular dissolving pulp mill but this would not necessarily be true for another. Top headlining was replaced by Hastelloy "F" strips because of corrosion in that area. Further trouble is not expected in the heads. Rayonier has placed an order with A. O. Smith Corp. for a second stainless steel digester with Hastelloy strip headlining and other modifications.

Dinner speaker was O. B. Falls, of General Electric Co., who discussed the critical Pacific Northwest power shortage and suggested more small steam plants and gas turbines to alleviate the crisis.

John B. Gray, chief engineer, of Rayonier, presided at the dinner and arranged the program. Moderator at the technical session was R. E. Thieme, technical director, Soundview Pulp, and section chairman.

The first U.S. patent for spreader stokers was issued in 1857 to James Hemington, but it is only recently that the use of spreader stokers has been accepted to any large extent. It was first developed for burning coal and is now being adapted to wood and other cellulose refuse. When firing this type of material use is made of star feeder or drum revolving at relatively high speed to spread the fuel evenly over the desired area. The fuel falling on this revolving feeder is kicked into the furnace.

Some installations include an air jet to assist in the spreading operation while some use air or steam as an emergency spreading device in case of distributor drive failure.

The spreader stoker as built by Westinghouse, Detroit, Riley or Combustion Engineering—Superheater differ in design and frequently approach the problem from different angles, but all are trying to achieve the same result. This is believed to be a major advance in the burning of solid fuels.

The application of spreader stoker firing to the West Coast lumber and pulp operations was not done until after World War II; when based upon the experience which had been developed at some of the Eastern and Southern plants, the subject of spreader stoker firing was considered by the West Coast operations.

The first step made by the Weyerhaeuser Timber Co. toward a spreader stoker application was in 1946 at their Klamath Falls, Ore., operation, where a system of controlled fuel feeding combined with automatic regulation and combustion control was applied to a conventional Dutch oven equipped boiler in an experimental fashion.

Following this experience, it was decided to use a similar type of fuel feed and boiler control for the Springfield, Ore., operation which went into operation in 1949. A spreader stoker was authorized in 1949 and the unit was sized in the Dutch oven of an 800 HP Erie City boiler located at the Longview (Wash.) Lumber Division in late 1949. This installation was classed as experimental and was installed in Longview to obtain the benefits of all types of hogged fuel including refuse from three sawmills, planing mill, three hydraulic log barkers, a plywood plant and a pulp woodroom. It was felt that with this variety of fuel all phases of spreader stoker operation could be checked with the exception of the use of hogged fuel from salt water borne logs. The hogged fuel available varies in moisture content from 8% to

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Five More Ordered

This installation was made strictly experimental in order to prove or disprove some of the theories of wood waste combustion in order to serve as a guide for future design. It was hoped that the spreader stoker would lend itself to West Coast wood refuse firing as had been demonstrated with the Eastern installations and, would effect an improvement to the overall efficiency of operation. The spreader stoker, as installed at Longview, is far from perfect but has served its purpose sufficiently to demonstrate the practicality of this type of equipment to such an extent that during the year it has been in operation, orders have been placed for five spreader stoker fired steam generating units. The first two of these units will be in operation within the next 60 days and it is believed that many of the mistakes and errors of omission demonstrated by the Longview operation have been corrected in the new equipment.

First step towards spreader stoker firing was installation of an automatic fuel feed and combustion control. It has been demonstrated beyond any doubt that combustion control is a requirement with any fuel having a value.

Installation of a spreader stoker directly into the combustion chamber has a material effect on the first cost of the equipment by the omission of the Dutch oven and reduction in space requirements. It is estimated that the installed boiler cost of the spreader stoker units now under construction is approximately 25% less than conventional Dutch oven equipped boilers.

It is believed that boiler efficiency of units now under construction will be increased over that of conventional Dutch oven type units because of the greater ability to control the flow of air particularly with reference to the infiltration through the feed holes and through the brick work.

The installation of the spreader directly into the combustion chamber should reduce maintenance costs since the furnace

JOHN B. GRAY (left), Chief Engineer, Rayonier Inc., Central Engineering Division, Hoquiam, Wash., who was a leader in arranging the Engineering Conference program in Tacoma, Wash., and presided at the dinner.

O. B. FALLS, JR. (right), Mgr. of the Product Division, General Electric Co., Seattle, who discussed the critical Pacific Northwest power shortage and possible ways of alleviating it.

is completely water cooled.

The particular units which have been purchased are equipped with dump type grates and are believed to be satisfactory for the type of fuels used. These fuels are low in ash and foreign matter and the additional cost of traveling type grate has not been demonstrated on the fuels available. With high percentage of ash or foreign material, the moving grate unit might be of value.

The spreader type stoker combined with the automatic feed and combustion control was believed to be more readily adapted to handling swinging load than is the conventional cone fired unit.

Conversion of Dutch Oven

To adapt the existing Dutch oven to spreader type stoker was actually not as difficult as might be assumed. Since nearly all Dutch ovens in the installations of today are equipped with some type of a flat suspended arch, very little, if any, change was necessary in the transition.

As in nearly all of such modern furnaces it was possible to remove the front wall of the Dutch oven without disturbing the remainder of the setting. After the front wall was removed, the removal of the old grates was accomplished in an easy manner.

Since the forced draft air was already installed so that it passed under the combustion chamber and entered through openings in the rear of the ash pit, the only change that was necessary was to bring all of the individual air passages together into a plenum chamber behind the rear support wall for the grates and arrange for the air to enter the under grate section through the manually controlled damper set in the wall.

As the under grate air temperature was not above the safe working temperature of Lumnite cement all support walls were cast of this material in ordinary forms of proper shape, and were prepared in advance of the anticipated job and sectionalized for easy handling.

Considerable care was exercised to maintain proper alignment of all mounting bolts and support points in order to provide good performance of the manually controlled damper and dumping grates.

As soon as the grate support wall was poured, the erection of the front wall was begun allowing extra care to maintain proper alignment of the metal front as it serves as a mounting plate for the complete stoker mechanism.

Standard fire brick was used in all straight areas, and all irregular shapes were made of plastic or cast set refractory.

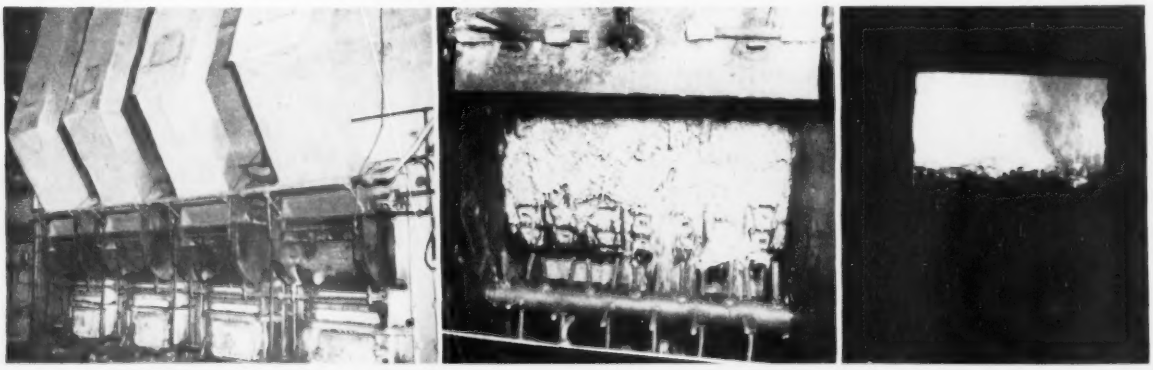
Secondary air was introduced at the upper four corners of the new oven to cause turbulence and were actuated by means of steam jets. These units were soon removed as preliminary operation seemed to disprove their need. Secondary air for the combustion chamber was added by means of 16⅛ inch steam jets spaced evenly across the back wall of the combustion chamber discharging through 4 inch pipe sections and set in cast set refractory at top bridge wall level and directed toward the bottom of the bridge wall.

The generally accepted problems of any method of burning is to have the fuel feed system controllable, dependable, and have sufficient reserve to carry over the irregular fuel delivery from process. This was accomplished by constructing a steel live bottom bin between the supply and return runs of the existing boiler feed

FOUR DISTRIBUTOR UNITS and down spouts from feeders above the Combustion Engineering wood burning steam unit at Weyerhaeuser operations.

DISCHARGE END OF ONE OF FOUR WOOD FEEDERS in the new installation at Longview which is applying a spreader type stoker to existing boiler.

THE DUTCH OVEN INTERIOR, through open door of Combustion Engineering furnace, showing the essential thin fuel bed upon the grates.



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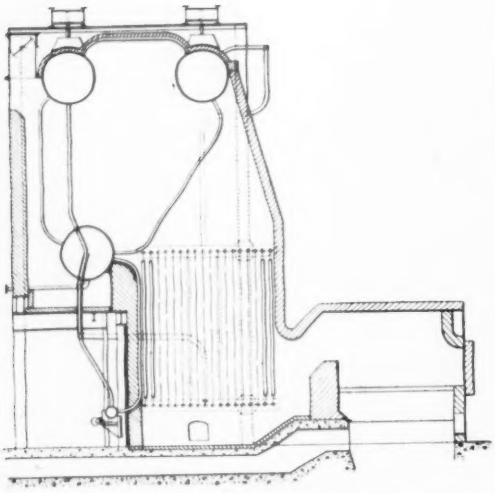

Figure No. 1—Unit before revision, showing boiler, water-cooled combustion chamber, and dutch oven with flate grate.

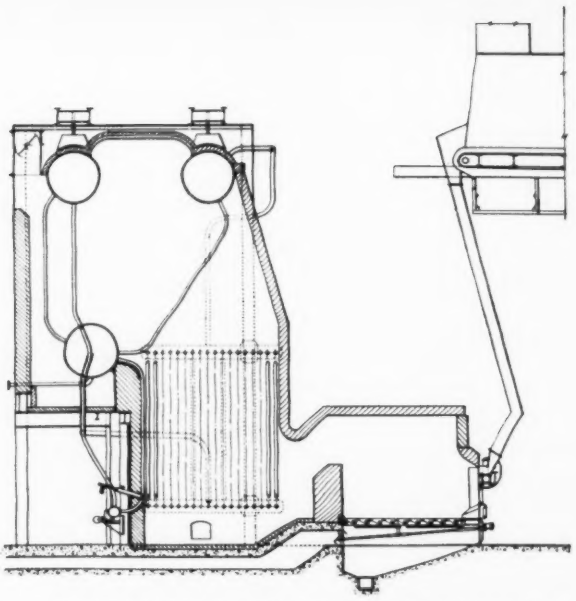

Figure No. 2—Unit after revision, showing boiler, water-cooled combustion chamber, spreader stoker, and wood feeder.

conveyers. As much of the steel as possible was prefabricated in order to take the best advantage of the limited time, since the major portion of the bin was installed over a weekend in order to cause a minimum of interference in the plant operation. All machine work was completed for the driving mechanism and assembled along with the structural parts.

The entire weight of the bin is supported by 4-H columns placed at the corners of the Dutch oven on both sides of the firing aisle. These are braced to I-beams which support the channel purlins which in turn support the sheets forming the bottom of the bin.

The bin bottom was divided into eight equal sections. Each section has seven chains running tight on the flat bottom of the bin and around the driving sprockets, then slack under the bin and around a skid to enter the bin. Each set of seven chains is individually driven from a countershaft powered by a Reeves Vari-drive motor, and regulated by the combustion control.

The regular Bailey boiler meter with balanced combustion chamber control was installed in the usual manner having all points accessible from the firing deck. The complete conversion from Dutch oven cone firing to spreader stoker firing was made in approximately ten days.

Observations

From this installation, we have made a number of observations and believe it to be an important forward step.

The fuel thickness on the grates is maintained between $2\frac{1}{2}$ and 12 inches depending upon fuel, load, etc. Best operation is obtained with thinnest possible bed that will keep the entire grate covered, usually a minimum of about $2\frac{1}{2}$ inches. The thin bed offers little resistance to air and gas passage which carries off the heat and maintains a grate temperature estimated to be within 50° F. of the temperature of the air passing through it. This has four important advantages:

1. No water cooling of grates is required thus avoiding the attendant heat loss.
2. No slagging or fusing of the ash occurs, minimizing the chore of cleaning grates.
3. Grate maintenance is practically nil.
4. Preheated air up to around 350° F. can be used without water-cooled grates.

Note: The grate cleaning frequency depends on the rating but under heavy loads they are cleaned twice a week. When let go for a full week the ash layer starts interfering with free air passage and some fusing takes place. When cleaned semi-weekly, only a small quantity of light dusty ash is present. Each grate is dumped by a steam operated cylinder and is not touched with a hand tool, unless a piece of tramp iron or other non-combustible material is found on the grate.

Since a thin fuel bed is carried, which offers little resistance to air passage, and since ash does not fuse on the grates, about the only resistance encountered is in the grates themselves. For this reason, only about 1/6th of the air space through the grates is required as with cone firing. This method makes use of all the grate area, while with cone firing perhaps 4/5ths of the air passes through about 1/5th of the grate area. In practice, large portions of the grate underneath the cone have been covered over without noticeable effect on burning rate, except in instances where the moisture content of the fuel was very high, in which case furnace capacity showed some decrease. However, the spreader stoker output is roughly proportional to grate area, the air pressure remaining constant.

With a thin fire on the stoker grate there is so little storage in the furnace that the fire will burn down within a minute or two after fuel flow to the furnace is shut off, and this feature facilitates cleaning under full load. With four feeders, distributors, grate sections, and underfed pressure chambers, there are actually four separately controlled fires in the furnace although the fuel bed makes one uniform blanket from side to side. One of the four can be burned down and cleaned at a time, while the windbox pressure and burning rate are increased on the other three to carry the load. This procedure is not normally followed as a matter of convenience but it is entirely feasible.

Success With Wet Wood

The spreader stoker combines suspension burning with a non-agitated fuel bed. The fires passing through the hot gas zone are dried out and many of them burned in suspension. The larger particles are surface dried in the same operation and start burning promptly after lodging on the fuel bed. The even distribution of air throughout the entire grate area makes possible the use of lower pressures and results in the absolute minimum of excess air and higher temperatures above the bed. The non-agitated fuel bed is alive and hot over its entire area. This combination makes it possible to successfully burn wood refuse of a higher moisture content (as from hydraulic barkers).

Air jets were originally installed at four corners of the Dutch oven with the idea of introducing secondary air and to impart a swirling turbulence to the air

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and gases. This arrangement increased the excess air and lowered the furnace temperature enough to retard combustion. Removing the jets improved the condition materially.

Originally, the fuel distributors were driven by an 1800 rpm. motor. The speed was too high and resulted in leaving the front grate bare and piling fuel against the bridge wall. The drive motor was replaced with one running 1200 rpm. and eventually with a 900 rpm. motor.

Several changes were made in the position and height of the bridge wall. At one time, secondary air was introduced via the bridge wall through an 8 inch pipe in which steam jets were placed. Too much excess air came through this system and it was removed after a six weeks trial. At the same time the bridge wall was set back 18 inches and the front face made sloping to prevent piling and slagging at the base. After experimenting with several different bridge wall heights it was finally left approximately three feet high, which leaves around three feet clearance between it and the drop nose.

Sixteen steam air jets were originally installed in the back of the combustion chamber to burn out the partially burned fuel carried over the bridge wall. These jets, originally ⅛ inch in diameter were drilled out to 3/16 inch and were later replaced with smaller ones, 1/16 inch in diameter. Further experimentation revealed that eight of these jets were sufficient to keep the carryover burned out without introducing enough excess air to lower the combustion chamber temperatures or form slag on the floor.

Two Essential Conditions

These are operating details that had to be smoothed out in the field. While they form no part of the spreader stoker yet they do contribute materially to the conditions necessary for obtaining the best results from the stoker. Two important facts were obtained from this experimentation:

1. That a uniform depth of fuel coverage is essential over the entire grate area and,

2. That temperatures must be kept as high as possible in the Dutch oven with a minimum of excess air. Because of the thin hot fuel bed it is especially sensitive to pressure changes in forced draft. This characteristic makes it particularly well adapted to automatic control. With this in mind, the boiler was equipped with a master pressure recorder, forced draft, fuel, and stack draft controllers.

The controller attached to the stack damper was set to maintain a combustion chamber pressure of from −0.05" to −0.1". Both the forced draft and the fuel can be set for either manual or automatic operation. When on automatic control the adjustment of each can be changed by a "bias" setting of controllers on the operating panel. When operating on full automatic, any change in steam pressure causes the master pressure controller to give the primary impulse to the forced draft controller with a secondary impulse to the fuel feed controller which readjusts through the steam flow air flow boiler meter.

The maximum load that could be carried on No. 7 boiler on cone firing was between 65,000 and 70,000 lbs. per hour. We have several load charts of spreader stoker operation that show an average of better than 75,000 lbs. per hr. for the entire 24 hours and a maximum of around 90,000 lbs. per hr. for extended lengths of time.

Fly Ash Comparison

A very interesting item is the comparison in the quantity of fly ash and cinders carried out the stack with stoker firing versus cone firing. A complete series of tests was made on No. 7 boiler and compared with an adjoining boiler, No. 5, a duplicate unit which used normal cone firing. The quantity of carryover in each furnace varies as some exponential function of rating, which is undoubtedly a direct indication of gas velocity. The cone fired furnace with its much higher gas velocities showed a carryover on the order of three times that from the stoker-fired furnace for the same boiler rating.

While the spreader stoker is particularly well adapted to automatic firing, the thin fuel bed and therefore small furnace storage, make it less desirable for straight hand firing with the damper controlled by steam pressure. It is entirely satisfactory when on a steady controlled load or when taken off the master control and used for base loading. Since the steam flow air flow readjustment calls for more fuel any time the flow rate drops, it gives the same impulse whether the fuel bed is slugged or starved. A series of rapid changes in load demand will eventually get into the position where the stoker is slugged and the control continues to call for more fuel. The fuel control then must be put on manual until proper conditions are re-established. A bolometer or heat sensitivity instrument was located in the back wall of the combustion chamber and aimed over the bridge wall. It was used to control the fuel readjustment instead of the steam flow air flow boiler meter. This instrument seems unable to distinguish between a hot flame over the bridge wall and a lower temperature flame that sweeps close to the back wall. The principal problem in automatic control of hogged fuel at the present time appears to be in the lack of adequate instruments that will give a true picture of what is going on in the furnace and use it to properly direct controls.

Most of the "bugs" that have been found in the stoker installation, especially those that resisted quick elimination, developed, not in the stoker itself, but in the details of furnace design and construction and in the accompanying apparatus.

Wide Variety of Fuel

One reason for installing this stoker at Longview was because of the wide variety in fuels and their condition as fired. The list of fuels includes dry planer shavings, green planer shavings, fir hog, sawdust, cedar hog, hemlock hog, bark and pulp bark plant and chipper refuse. This list varies in moisture from perhaps 8% to 70% and in size from sawdust to coarse cedar hog with a consistency similar to baled hay. Cedar bark is fibrous and tends to collect in bunches. It is not unusual for chunks to come in having a volume of as much as 50 cubic inches. And "shims," as they are called, which are very thin boards from 3 to 6 inches wide and a matter of feet in length, are sometimes a real nuisance. The inability of the conveying and measuring equipment to properly handle the rougher type of fuel has been the most difficult problem to arise. Much time and expense have gone into solving this problem with only limited success. This difficulty is not peculiar to any special type of firing, but is present whenever a controlled system of distribution or measuring of hogged fuel is attempted. At the present time with such a variety of rough fuel being handled, the one solution that seems most adequate is to segregate the fuel and re-hog the course particles.

The stoker changes have been principally a matter of adjustment or a little more ruggedness in one or two places to take care of tramp iron or heavy chunks of wood. The experience with the stoker at Longview has caused some revision in the general thinking regarding hogged fuel burning. The results there have prompted further commitments for this type of spreader stoker.

Advantages of Spreader Stoker

The principal advantages seen in the spreader stoker at the present time are:

1. It utilizes the entire grate area permitting smaller burning space or higher boiler ratings.

2. The thin, active, non-agitated fuel bed results in:

   a) Less windbox pressure required.
   b) Lower grate temperatures.
   c) No slagging on the grates.
   d) Less heat loss as in water-cooled grates.
   e) Higher preheated air temperatures.
   f) Ability to burn high moisture content fuels.
   g) Less grate maintenance.
   h) Less excess air.
   i) Less cinder and fly ash carryover.
   j) Overall efficiency is increased as the excess air and cinder carryover is decreased.

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Richard H. DeMott, who started as a salesman with SKF Industries, Inc., 35 years ago, is the new president of the ball and roller bearing company. He succeeded William L. Batt, wartime production expert, who formally resigned to reenter government service as chief of the Economic Cooperation Administration mission to the United Kingdom. Both assumed their new duties Nov. 1. Mr. DeMott had been vice president in charge of sales since 1943.

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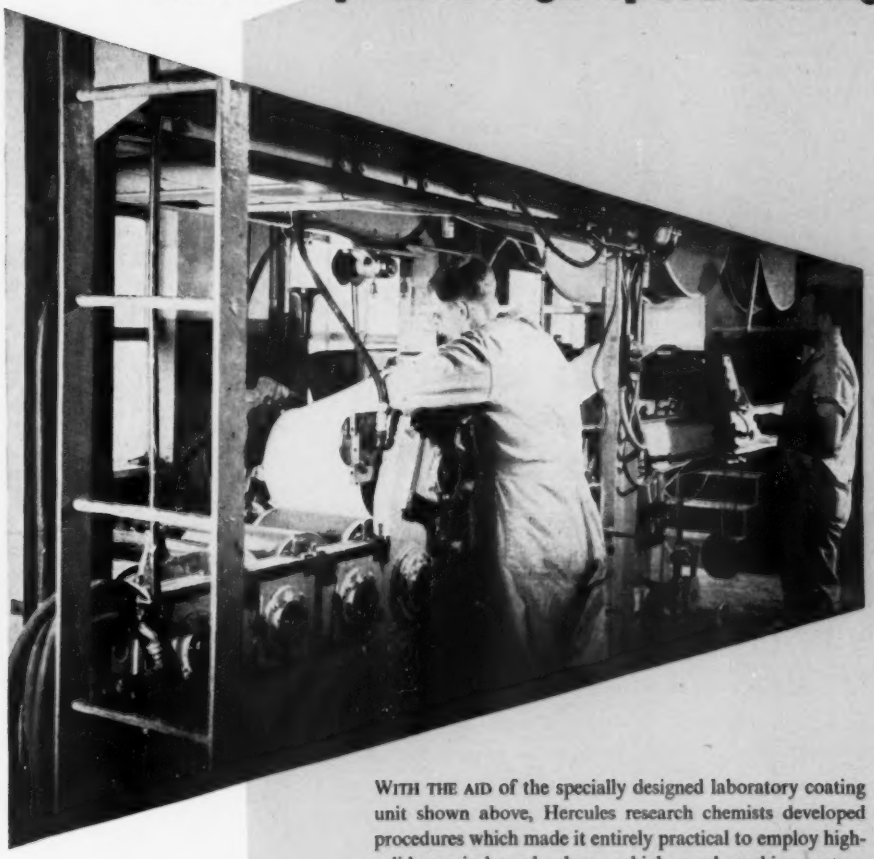

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SIZING MATERIALS AND CHEMICALS FOR PAPER

SEMI-CHEM ASPEN PULP FOR SPECIALTY PAPERS

By Karl W. Fries
Technical Director, Rhinelander Paper Co.

Semi-chemical pulp really is a half-breed between mechanical pulp or ground-wood and chemical pulp as obtained by the sulfite and alkaline cooking processes. . . . Interest in the semi-chemical pulping methods has been very active for the last 50 years and almost every conceivable combination of chemicals has been suggested.

The first semi-chemical pulping process that has taken on commercial significance is the neutral sodium sulfite semi-chemical pulping of aspen and hardwood as reported by the U. S. Forest Products Laboratory (Madison, Wis.), in 1926. It was first applied to the pulping of extracted chestnut chips for the production of hard boards, but later also to the production of boards from unextracted chips of other species of wood. No fine papers had been made from this type of pulp until the 1940's.

Our interest in semi-chemical pulping was first aroused when I had a discussion with Dr. Ritter in Madison when he told me about the excellent properties that can be obtained with this type of pulp when it is bleached sufficiently carefully so that a large portion of the so-called hemicelluloses remains in the pulp. Samples of bleached pulp, which he gave me and that we tested in our experimental beater, showed remarkable results. The mullen tests, as well as the hydration, were equal to or better than our best bleached Mitscherlich pulp from spruce and the tear was equal to that of bleached kraft. The results appeared almost unbelievable. The pulp appeared ideal for the production of glassine and greaseproof paper. We then made arrangements with the Forest Products Laboratory to produce about 4 tons of unbleached pulp in their vertical 1,000-lb. digester, disintegrate the chips at Madison with a Bauer refiner and then ship the pulp to Rhinelander where it was to be bleached with chlorine in the first stage, neutralized with lime, washed and then bleached with calcium hypochlorite in the second stage. The wood we used for this large scale experiment was peeled poplar (aspen) wood which we shipped from Rhinelander to Madison.

The liquor concentration, as well as cooking curve, followed the usual pattern. After the chips had been charged to the digester and the cover was bolted on, the chips were pre-steamed for 45 minutes, the liquor was pumped in and the liquor circulation was started with steam being applied at the heat exchanger. Next, the temperature was raised to 120° in 45 minutes and held at 120° to 122° C for one hour. The release valve was then closed and 68% of the liquor pumped in was drained. The digester was then steamed with direct steam to raise the temperature to about 170° C and 80 lbs. pressure. The liquor circulation was maintained during the period of direct steaming. The cooking was continued until the liquor had reached a certain concentration of sodium sulfite and the charge was blown without first relieving the pressure. The concentration of the liquor as it went into the digester was 69 grams per liter of sodium sulfite and 17 grams per liter of sodium carbonate.

The pulp was shipped to Rhinelander in lap form and was bleached in our two stage bleach plant. The total chlorine consumption was slightly under 20% with 90% of chlorine added in the first stage and 10% in the hypochlorite stage. The amount of lime used for neutralizing between the two stages was approximately 20%. The pH was kept at 8. Some difficulties were encountered during the washing of the neutralized stock due to the fact that the pulp held the water too tenaciously. This was overcome by running the stock at higher dilution so that a thinner mat of fiber went over the washing drum.

The stock was run through our regular beating equipment, that is, it was charged into one of our mixing beaters, and beaten in three Morden Stock-Makers. The pulp furnish consisted of 80% bleached aspen semi-chemical pulp and 20% bleached indirect spruce. The resulting paper was a high grade glassine of good transparency and superior strength qualities. We made some more runs in which we varied the furnish by changing the proportions of bleached spruce to bleached semi-chemical poplar, but in each case, the superior strength properties of the semi-chemical pulp made themselves felt.

This work was done late in 1942, when the war was on and, unfortunately, it was impossible at the time to follow up on the results obtained and go to the installation of a semi-chemical pulping plant. The matter remained dormant until the end of the war. In 1947 the matter was taken up again and before we decided to go to commercial equipment, we conducted some more large scale experiments on the paper machine with this type of bleached pulp. For this purpose we obtained the use of a semi-chemical pulping plant in lower Michigan where we produced several carloads of lapped, unbleached semi-chemical poplar (aspen) pulp, shipped it to Rhinelander, bleached it and used it in our furnish. These tests showed that it was feasible to use this type of pulp in our grades of paper over a continued period of time. *However, the erection of a new paper machine and expansion of the mill in general prevented the erection of a semi-chemical plant until now. The matter is still very active in our minds and as soon as the proper time has arrived, we certainly go into it.*

I would like to mention at this point that it is extremely important that the bleaching process is carried out properly. *It is absolutely essential that a sufficiently large proportion of the hemicelluloses be retained by the pulp.* If the neutralization between the two stages of bleaching is carried out at too high a concentration of alkali, the hemicelluloses will be dissolved out and the benefits of easy hydra-

FOLKE BECKER (left), President of Rhinelander, who pioneered many new ventures at that mill—fastest and highest speed glassine papermaking; a new refining technique for glassine before World War II with a score of Morden Stock-Makers; the Lake States sulfite liquor yeast plant started with other Wisconsin companies, but now owned entirely by Rhinelander; a new evaporation and burning installation for waste liquor, now being installed—Next on his list may be a semi-chemical plant.

KARL W. FRIES (right), Technical Director at Rhinelander, who participated in these developments—he is author of the article on this page. He was born near Berlin, Germany; came to the U. S. in the '20's; was with Oxford Paper Co. 12 years; joined Rhinelander in 1939.

Interest in New Pulps Strong in Lake States

In commenting on this article—part of an address he gave at a recent Green Bay, Wis., Lake States TAPPI meeting, in which he envisaged semi-chemical pulps for glassine and other strong high density papers—Karl Fries told PULP & PAPER.

"The meeting was well attended and I must admit I was quite surprised about the tremendous interest that was shown in this type of pulping."

tion and high mullen strength will be lost. Besides that, the yield of bleached pulp will also drop.

Here follows a portion of a technical paper which Mr. Fries wrote and presented at a New York TAPPI meeting, giving more technical detail on semi-chemical pulp for glassine or similar papers.

Easily Hydrating Pulp From Aspen

An increased demand for special high density papers has created considerable interest lately in the production of easily hydrating pulps.

Previously, easily hydrating pulps were used principally in papers such as glassine, greaseproof, manifold, tracing, and papers for the electrical industry. Recently, however, the demand for impregnation papers for plastics, locker papers and special packaging applications has enlarged the interest in easily hydrating pulps.

A pulp is generally understood to be easily hydrating if it fulfills the following requirements:

On beating it should reach a maximum mullen value in a relatively short time with only a moderate drop in tear values. Both the pop and tear curves should flatten out after a short beating time. Especially the pop curve should not drop too abruptly after it has passed through the maximum. Handsheets made at different intervals of beating time should develop a blister after relatively short beating, when they are exposed to an open flame.

Table 1 gives typical beating data on an easily hydrating pulp indirect sulfite process:

TABLE 1—BLEACHED MITSCHERLICH

Beat'g Time Min.	*% Mullen*	*% Tear*	*Hydration*
0	52	258	
20	118	113	
40	128	71	Very High
60	135	64	" "
80	137	60	" "
100	134	55	" "

Work with holocellulose has shown that this product develops hydration in remarkably short beating time, and attempts were made to employ pulps rich in hemicellulose for the production of high density papers. This interest was greatly furthered during the war when spruce was hard to get and hardwoods grew right in the back yards of most paper mills.

Poplar wood (aspen) which grows abundantly in the Lake States region is low in lignin content and high in pentosans. This species was, therefore, singled out to find out whether or not a suitable glassine pulp could be made from it. . . .

Our attention was directed to the neutral sodium sulfite process as developed by the Forest Products Laboratory at Madison.[4,5] Some aspen pulp that was cooked and bleached at Madison by this process was studied in an experimental stone roll beater with results as shown in Table 2. As can be seen, the pulp developed remarkable strength properties and good hydration.

TABLE 2

Beat'g Time Min.	*% Mullen*	*% Tear*	*Hydration*
0	99	157	
20	130	126	
40	145	110	
60	147	102	
80	148	84	Very High
100	149	59	" "

Comparison of the data of Table 2 with that of Table 1 show that this pulp is well within the strength level of Mitscherlich spruce.

The value of % Mullen and Tear were obtained by dividing the Mullen pop, Elmendorf tear tests, respectively, by the basis weight of the test sheet and multiplying by 100. The standard basis weight of the test sheet is 37 lbs. (24x36/480). Hydration is estimated by the type and color of blister found when the sheet is heated by an open flame. If a large blister of white color pops up, the hydration is very high.

Our next step was to prepare about two tons of this fiber for a regular mill trial. The cooking and mechanical refining was carried out at the Forest Products Laboratory in Madison along their standard procedure of preparing neutral semi-chemical sodium sulfite pulp. The bleaching was done in commercial equipment at Rhinelander in two stages following preliminary small-scale trials at the Madison laboratory. The yield of bleached pulp was 60% based on the original wood.

Advantages of Semi-Chem Pulp

The resulting stock hydrated easily and ran well on the paper machine. The sheet had good transparency, greaseproofness, and was fully up to the level of a sheet made from indirect spruce with regard to strength properties.

The consumption of chemicals for the preparation of this pulp can be considered approximately as follows:

525 lbs. of Na_2SO_3 as Na_2Co_3 per ton of bleached pulp
180 lbs. of $NaHCO_3$ per ton of bleached pulp
325 lbs. of Cl_2 per ton of bleached pulp
40 lbs. of NaOH per ton of bleached pulp

To prepare 525 lbs. of Na_2SO_3 requires 440 lbs. of soda ash and 135 lbs. of sulfur.

Power consumption for refining, screening and pumping is about 550 KWH.

Cost per ton of pulp is not so very much lower than that for bleached spruce, but at a time when spruce becomes scarcer and scarcer, especially at the increased rate of pulp consumption, it may be worth the while to investigate the advisability of producing special pulps from poplar (aspen) or other hardwoods that are locally available instead of buying spruce that is difficult to get and has to be hauled a long distance by rail.

Other advantages of pulping hardwoods by the semi-chemical process are higher yields and better strength properties.

At the present time the semi-chemical neutral sodium sulfite process as worked out by the Forest Products laboratory is ready for commercial application. It has been in use for the production of unbleached pulps for many years, and it has been demonstrated that it is feasible to manufacture a bleached pulp of high brightness, good strength and good hydrating quality.

It should be possible, however, to work out other semi-chemical pulping processes that use calcium as a base instead of the costly sodium, and by this substitution semi-chemical hardwood pulps may appear even more attractive than they are now.

Acknowledgment is made to C. G. Schultz, who carried out most of the cooking and bleaching experiments, and to the Pulp and Paper Section of the Forest Products Laboratory, where the unbleached semi-chemical poplar pulp was produced.

ANOTHER IN SEMI-CHEMICAL PULP PLANTS SERIES

This is another article in an unusual series in which PULP & PAPER has presented the progress of semi-chemical pulping processes in U. S. and Canadian mills.

In this article it is revealed that Rhinelander Paper Co. is convinced that aspen of Wisconsin—considered a virtually worthless, though prolific, weed tree until just a few years ago—can be successfully utilized for high quality glassine papers through the neutral sodium sulfite semi-chemical process, followed by carefully controlled bleaching.

All that has delayed Rhinelander being added to the mills adopting semi-chemical pulping to supply or supplement their raw material has been the priority given to its recent expansion program—construction and startup of a new bleach plant; also of the new Beloit glassine machine, the Ripco Maid (152 inch width, like the machine it virtually duplicates—the Big Swede, which went in just before World War II). Eight more Morden Stock-Makers, new Dorrco filter plant, two new Bird Jonsson screens, are among other additions that held up semi-chemical pulping here.

Higher yields are obtained by semi-chemical processes, and a variety of tree species can be used—arguments which may weigh in favor of even wartime construction of plants.

The series of articles in PULP & PAPER on semi-chemical pulping follow:

Aug., 1950, issue—A general review; also Consolidated Water Power & Paper Co.'s book paper semi-chemical neutral sulfite plant at Wisconsin Rapids.

Nov., 1950—Gaylord Container's semi-chemical kraft plant for board at Bogalusa, La.

Dec., 1950—American Box Board's semi-chemical plant for board at Filer City, Mich.

Jan., 1951—Green Bay Pulp & Paper's semi-chemical plant for board at Green Bay, Wis.

In earlier issues—Articles on processes at Bathurst, Powell River and Sturgeon Falls, all in Canada.

Galen Heads Purchasing; Kimberlin is C. Z. Sec'y

D. J. Galen (in picture), secretary for 25 years of Crown Zellerbach Corp., and predecessor companies, with headquarters in San Francisco, has been appointed vice president in charge of purchasing, in which field his experience began in 1917.

Robert T. Kimberlin succeeds Mr. Galen as secretary. Mr. Kimberlin has been with Crown since 1938 when he left the New York law firm of Sullivan and Cromwell to become assistant to President J. D. Zellerbach.

Since his appointment in 1912 as confidential secretary to Louis Bloch, then vice president and general manager of Crown Columbia Pulp & Paper and Floriston Pulp & Paper, Mr. Galen has been continuously associated with executive functions of the corporation.

Other promotions announced by the board: Richard G. Shephard, secretary to the president, to assistant to the president; William D. Welsh, supervisor of community relations, to director of public relations; P. F. Middlebrook, industrial relations assistant, to director of employe relations; J. T. Hughes, assistant treasurer, to supervisor of all employe benefits; Herbert Nylund, former accounting supervisor, to assistant treasurer.

FARMING VS. PAPERMAKING

From farm boy to general superintendent of one of the biggest paper mills is the story of Frederick R. Riley (shown in picture), who is general superintendent of paper mills at Powell River Co., Powell River, B. C. Born in Kansas, his first paper company job was in Oregon, and he worked for mills in Wisconsin, Minnesota, Ontario and northern British Columbia before his travels ended at Powell River in 1922, according to a fine tribute published in the Powell River *Digester*.

The lifetime story of Mr. Riley was for years a struggle between love of the soil and the lure of papermaking. Born in Colwich, Kansas, he started farming and worked with his uncle in Kansas for several years. In 1913 the farm boy headed for Portland, Ore. While running an elevator in a wholesale hardware store, somebody told him about a fabulous spot called Oregon City, where there was a paper mill, where salaries were equally fabulous and promotions were rapid.

That was Fred's start in papermaking. He joined the Crown Willamette Co., pulling blocks in the wood room. He didn't care too much for that sort of thing, so he headed across the street to the Hawley mill to pick up the trail as a broke hustler on a Harper machine.

But the land called again. He spent a summer picking grapes in California, then grabbed a train for Wisconsin and worked with the Cloquet Paper Co. at Ladysmith. About a year of this and back west again to help harvest the Idaho wheat crop. By this time it was 1915 and the paper mill's turn—so it was back to Oregon City. The paper machines held him for a year—in which he stepped up to winderman. Next hop was to Ritzville, Wash., on another wheat proposition, involving superintending a 12-head horse team hitched to a 3-furrow plow.

Next stop was at the Inland Empire paper mills in Spokane. One year as winderman here and Fred went to Ocean Falls, B. C. in 1917. He helped start up the third and fourth machine, stayed a year and a half, worked up to backtender—and called it square. Back to Washington for a summer's harvesting—and once more to Ocean Falls for 18 months.

Fred, in 1921, struck east and worked successively at International Falls, Minn.; Iroquois Falls, Ont., and Cloquet, Minn. In 1922 he went to Powell River, starting as a backtender, moved up to machine tender late in 1922; in 1932 was promoted to boss machine tender; later to assistant paper mill superintendent; and in 1936 to superintendent. In 1947 he was elevated to his present key post of general superintendent of paper mills. His jurisdiction includes machine rooms, beater rooms, finishing room and wharf.

On July 3, 1926, Fred married Frances M. Postlethwaite of Victoria, B. C. They have two sons.

PAPER COATING MACHINE AT MICHIGAN PAPER CO. OF PLAINWELL, Mich., with the splash guard removed so as to show the patented METLKOR cylinder brush and above it three sets of flat brushes. These brushes were made by M. W. Jenkins' Sons Co., Inc., Pompton Ave., N. J. With cooperation of Dow Chemical Co., Jenkins carried out a 16-months' research which developed a preservative treatment for brushes called "Lifewood" which has toxic effect on fungi and termites and resists stain, repels water, resists leaching, and is not injurious to worker or product. The Jenkins firm began making brushes in 1877.

JOHN P. RICH (left), elected President of Improved Paper Machinery Corp., Nashua, N.H., was born in Vermont, graduated from M.I.T. in 1930, worked at the Groveton Paper Mills in New Hampshire for a year and has been with IMPCO since 1931, starting as mechanic. Became a Director in 1935 and Executive Vice Pres. in 1947. Ex-Pres. Walter L. Barker became Chairman.

MARK M. BIDDISON (right), became Executive Vice Pres. of General Chemical Division of Allied Chem. & Dye Corp., New York. He had been Vice Pres. since 1947 and before that Gen. Mgr. and Asst. Gen. Mgr. Was formerly Cleveland Mgr. for the company.

16-Acre Newsprint Terminal for Daily News

Although it boasts often "having everything," the big town of New York sometimes reveals large anachronisms. One such is that huge modern motor trucks, such as newsprint trucks, can barely maneuver in their accustomed areas; and storage facilities suitable to a modern newspaper's needs in newsprint are rare. But last month the Daily News announced it would build New York's first modern newsprint terminal of 16 acres at a cost of $2,500,000. The News grew tired of losses incurred by fire, water damage, and bad handling, bought the site near the new Battery-Brooklyn tunnel two years ago. As conceived by the News, it will include a 450-foot wharf to berth ocean-going vessels and barges, alongside a 200,000 square foot two-story reinforced concrete building with automatic sprinklers, conveyors, escalators, rail sidings which permit unloading of eight cars at once. It will be provided by the latest in mobile materials handling equipment and devices, and should "process" and store 290,000 tons of news and rotogravure paper annually—protecting a material valued at an annual total of about $30,000,000, according to News figures.

Baie Comeau mill of Quebec North Shore Paper Co. is the chief supplier of newsprint for the News. Baie Comeau has no rail facilities and newsprint is shipped in months of navigable waters, May to December usually.

J. H. LAWSON of Vancouver, B. C., has been directing legal affairs of British Columbia pulp and paper companies for as long as most people can remember, and recently his colleagues in Powell River Co., of which Mr. Lawson is secretary, presented him with a combination radio-phonograph with record albums of his favorite operas.

JOHN G. STRANGE, secretary-treasurer of the Institute of Paper Chemistry, has been elected president of the City of Appleton, Wis., board of education which has supervision over the city's school system.

Two Steps

TOWARD WHOLE TIMBER CROP UTILIZATION

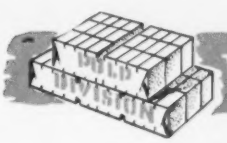
PRE-LOGGING which harvests small trees for use before they are damaged by the big log harvest.

RE-LOGGING which salvages much useable wood after the big log harvest.

Pre-logging and re-logging are two Weyerhaeuser forestry practices that produce wood now useable in both the Weyerhaeuser sulphite and sulphate pulp mills. Logs as small as 4" in diameter and 8' in length are now handled by a recently developed small log hydraulic stream barker.

This means that the two sulphite pulp mills are producing pulp from logs of all sizes . . . the smaller ones supplied by pre-logging, which utilizes small trees that would otherwise be completely destroyed and wasted when larger trees are felled. The new sulphate pulp mill located adjacent to the lumber mill at Longview, produces its bleached kraft pulp from pre-logging operations, edgings and slabs from the Douglas Fir Saw-Mill . . . also from re-logging operations which follow the harvesting of the mature timber.

These advanced logging and whole crop utilization practices have made possible the economical operation of the Weyerhaeuser mills and greatly increased the pulp production from a given stand of timber.



WEYERHAEUSER

Personals

News About Industry "Affiliates" From Coast to Coast

The Equipment and Supply Men

THOMAS R. VAUGHAN, ROBERT C. HILLS, and *RICHARD C. WELLS* are newly named vice presidents of Freeport Sulphur Co., New York, according to Langbourne M. Williams, Jr., president. Mr. Hills started with Freeport as chemist in 1934; Mr. Vaughan, an attorney, became assistant secretary in 1942; and Mr. Wells joined in 1939 to become assistant treasurer and eventually controller.

WALTER B. MOREHOUSE, Nopco Chemical Co., Inc., Harrison, N. J., who served as the industrial affiliates representative for the Pennsylvania-New Jersey-Delaware Division of the Superintendents, is to continue in this capacity for 1951. Mr. Morehouse also is second vice-chairman of the industrial affiliates national committee.

CHARLES VICKERY, sales manager for E. D. Jones and Sons Company, Pittsfield, Mass., was a business visitor in Cuba for two weeks in November in connection with the installation of new refiners in a well known Cuban paper mill.

A NEW AIR VIEW of modern Multiwall Bag Factory built just two years ago at St. Helens, Ore., by Bemis Paper Bag Co. The Manager is L. A. LINVILLE, with offices at Vancouver, Wash.

New Bemis Bag Plant Makes Many Types

The Bemis Paper Bag Co.'s Multiwall Bag Plant, shown in this new air view above, is adjacent to St. Helens Pulp & Paper Co. in St. Helens, Ore. L. A. Linville is the manager, with his offices at 1401—26th St., Vancouver, Wash.

The new plant was built about two years ago. It manufactures all types of multiwall bags, including sewn valve, sewn open mouth, pasted valve and pasted open mouth. Bags are constructed from 2 to 6 walls from natural kraft and other special sheets, such as asphalt laminated paper, wet strength paper, colored and creped krafts.

This plant delivers multiwall bags, primarily, into seven Northwestern states. Some shipments are made to the East and into Northern California.

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VIRGIN TIMBER

REFORESTATION

PULP MILL

LOGGING OPERATIONS

SAWMILLS

SHINGLE MILLS

PRES-TO-LOGS

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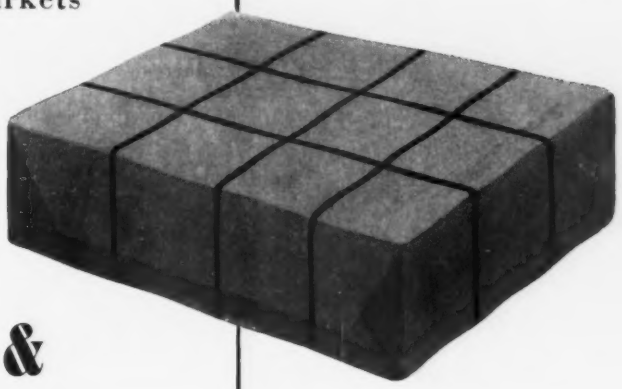

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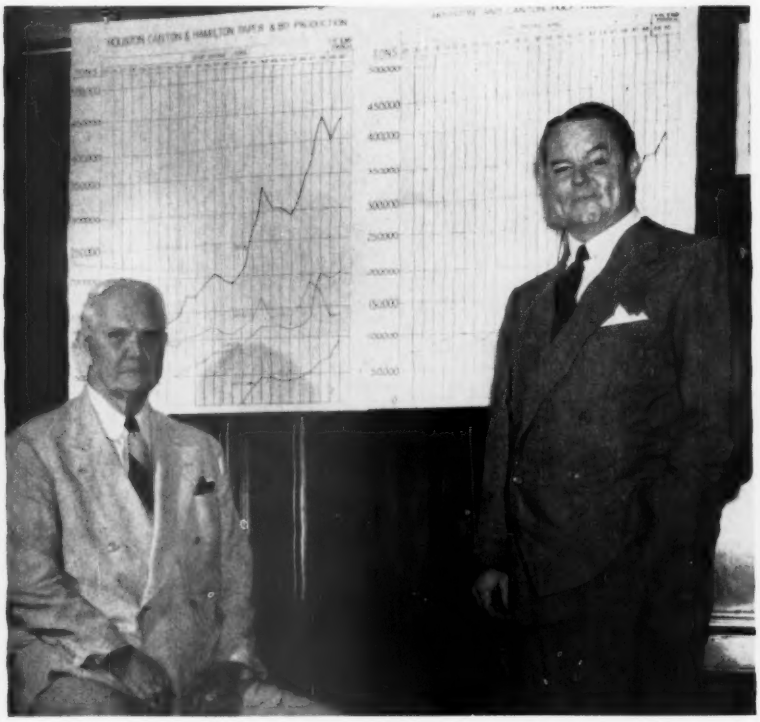
FATHER AND SON—THE TWO TOP EXECUTIVES OF CHAMPION



In the September issue of PULP & PAPER we published pictures of Rueben B. Robertson, Sr., and Jr., and the news that they had become board chairman and president, respectively, of Champion Paper & Fibre Co. Now here is a new picture of the two top executives of Champion, and, appropriately, in the background is a wall drawing showing four climbing lines of production for the Houston, Tex.; Canton, N. C., and Hamilton, O., Divisions of that company and for the whole company. We have now received more about their personal histories, too.

The elder Mr. Robertson's promotion to the chairmanship was a natural step in the recognition of his 43 years service. Joining the company in 1907 at Sunburst, N. C., he held various jobs until 1912, when he was made general manager of the Canton mill.

When the Canton and Hamilton mills were formed into the Champion Paper and Fibre Co. in 1935, he was made executive vice president, and in 1946 he assumed the presidency.

A graduate of Yale University and holder of an honorary doctor of science degree, he served on the National War Labor Board during World War II; has been president of the American Pulp and Paper Association, and a director of the National Association of Manufacturers. In 1941 he served as one of 12 industry representatives in the Industry-Labor Conference called by President Truman.

Also a graduate of Yale, with a B.S. degree in chemical engineering, "Reuben, Jr."—as he is known throughout the paper industry—joined Champion in 1928, and has worked in all divisions. In 1936, he became vice president, and in 1946, executive vice president. Prior to assignment with Army Service Forces in World War II, he spent several months in Washington, D. C., on the War Production Board.

He is the fifth Champion president, following the first president and founder, Peter G. Thomson (1893-1931), Alexander Thomson (1931-1935), Logan G. Thomson (1935-1946), and Reuben B. Robertson (1946-1950).

E. H. NUNN, technical supervisor, Crown Zellerbach Corp., West Linn., Ore., attended the annual research committee meeting of National Lithographic Technical Foundation, held Oct. 26, at Washington, D. C. Mr. Nunn, only member of the committee from the western pulp and paper industry, says the objective of the session was to review ways and means of operating the lithographic industry during time of international conflict and considering ways of improving lithographic printing.

J. G. TALMADGE, recently on consultant work for American Writing Paper and prior to that a member of the superintendent's staff of Ecusta Paper Corp., has become general superintendent of paper mills for J. L. LOWE of the Lowe Paper Machinery Co., Holyoke. Mr. Lowe and others have formed the Holyoke Pulp and Paper Co. to operate a mill at Wilbraham, Mass., based on Mr. Lowe's paper reclaiming process and equipment. Other manufacturing sites are planned, hence the plural in Mr. Talmadge's new title.

Waste Liquor Product Aids Rubber Industry

Marathon Corp. reports that a dispersant product developed at its sulfite liquor chemical plant in Rothschild, Wis., where vanillin and plastic products are made, is helping to improve the quality of rubber. Demand for it from this one mill is approaching capacity, said Dr. Allen Abrams, vice president in charge of the chemical division.

Petroleum chemists have recently developed carbon black in an improved form which produces a better grade of synthetic "cold rubber" than before. Tires made with this new carbon black wear longer, and they do not require as much natural rubber. But the new process at first had the major drawback of slowing down production in the rubber factory. To overcome this drawback, makers of synthetics are now using the dispersant made from sulfite liquor. Putting it into the rubber latex solution along with the improved carbon black greatly simplifies the operation, and yields an even better grade of rubber.

Bagley & Sewall Mill

What is believed would be the first "pilot" mill owned and operated within the interests of a paper machine builder solely for experimental purposes will soon take shape from the old Frontenac Paper Corp. property, together with the former Frontenac Hydroelectric Corp., which was sold in November to the Abe Cooper Watertown Corp., Watertown, N. Y.

Mr. Cooper is head of Bagley & Sewall Co., makers of paper mill machinery. Announced price to the seller, the Dexter Sulfite Pulp and Paper Co., was $15,000 for the mill, damaged by fire; and $55,000 for the hydro property. The machinery will be sold as junk and Mr. Cooper's plans are to rebuild the mill for trying out new equipment made by Bagley & Sewall.

Sonoco To Add Machine; Installs WACO Filter

Sonoco Products Co., Hartsville, S. C., plans to add its ninth paper machine. Work has already been started to clear and build housing parallel to No. 2. Part of the new installation may be second hand; other parts bought new from machine builders.

A WACO Filter supplied by Improved Paper Machinery Co.— the third to be installed in the U. S.—has been installed at the Sonoco mill to filter Mill No. 1 water and recovers about 99% of the one lb. per 1,000 gals. which goes to the filter, recovered fiber being re-used as furnish. The filter capacity is 1600-1900 gpm.

JOHN CARLSON, assistant general superintendent, Soundview Pulp Co., Everett, Wash., and his wife, Mary, have made horse racing a hobby and it paid off recently when their gelding "Better Wave" won the $8,000 Futurity at Longacre Track near Seattle, one of big races of the western season.

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Another big low-speed motor by...

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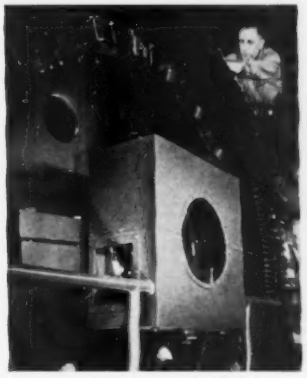
***A large low-speed engine type synchronous motor with split rotor,* for driving Ingersoll-Rand type PRE reciprocating gas compressor.**



Close-up of the pressurized explosion-resisting collector ring enclosure.

This big motor is rated 2000 hp, 164-rpm, 4000 volts, 3 phase, 60 cycle, 50 C rise, 1.0 power factor. The split rotor is to enable assembly on the compressor shaft in the field. Collector rings are enclosed, adapting the unit to duty in explosive gas atmosphere.

Elliott has established a particularly strong reputation in large motors designed for specific and individual conditions, such as the one illustrated here. An exceptional degree of rigid ruggedness is gained by the famous Elliott "Fabri-Steel" construction while high performance and endurance are assured by quality workmanship throughout.

For full details write for Synchronous Motor Bulletin PB5000-2.

L-809

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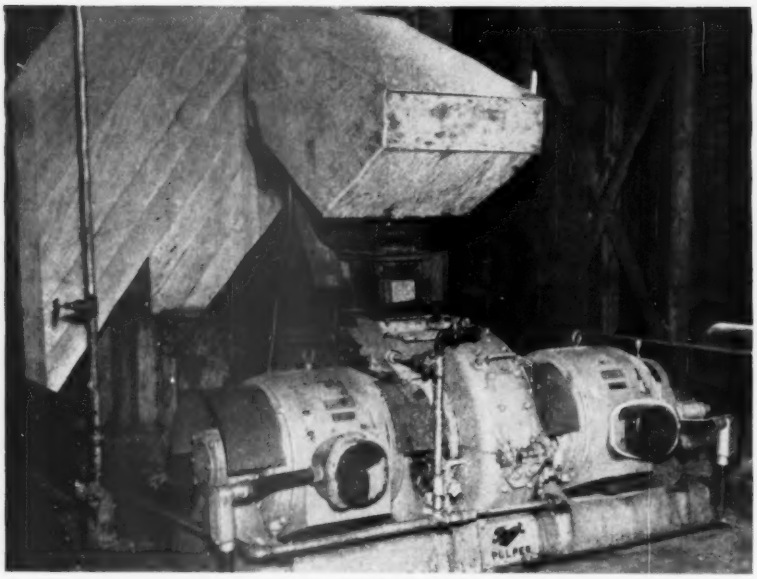
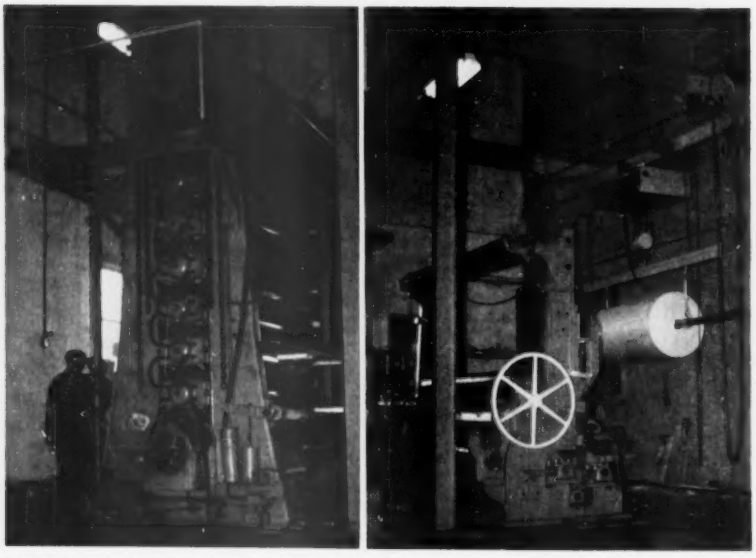
HALF CENTURY OF 1901 EC 1951 POWER PROGRESS

Bauer Used on Sulfite Screenings



For first time in Far West, and possibly one of first in sulfite industry, a Number 187 Bauer Brothers Pulper, 24 inch model, is being used on sulfite screenings at Puget Sound Pulp & Timber Co., Bellingham, Wash. This machine is preparing eight tons of sulfite screenings a day for the Paperboard Division of Puget Sound Pulp. It is driven by two 50 h.p. Westinghouse motors, one on each of two discs of the mach. The screenings are blended with sulfite pulp and waste paper for container board.

Abitibi Supercalender at Fort William



B. F. PERKINS & SONS CALENDER STACK (left) and MOORE & WHITE CO. CALENDER STACK WINDER (right) are installations which have been running about a year at Abitibi's Fort William, Ont., mill and described in this article.

Abitibi Power & Paper Co.'s Fort William, Ont., mill has had in operation about a year new supercalender facilities. The stack was started up by Ted Arthurs, supercalender foreman at Port Arthur division of Provincial Paper Ltd., an Abitibi subsidiary.

The Fort William operation is under Sterling Christiansen, loaned from Provincial Paper.

The supercalender is in a 30 x 55 ft. addition to the finishing room so rolls can be removed from the finishing line to be supercalendered and returned for wrapping. The stack was manufactured by B. F. Perkins & Son, Inc., of Holyoke, Mass. and is equipped with nine 120-in. face rolls. Loading is by levers, weights and tension rods. Nip pressure can be varied between 500 and 2,500 pounds per inch of nip. The stack is driven 500 to 680 f.p.m. by a 125 h.p. variable speed A.C. induction motor.

The winder is of the stationary center-wind type manufactured by Moore & White Co. of Philadelphia, driven through a set of cone pulleys from the drive shaft of the stack. Its speed is regulated to that of the stack by a tension toll in the rewind draw which is linked to the cone pulley belt shifter so as to automatically compensate for any slackening or tightening in the sheet.

The winder is equipped with slitters ahead of the rewind shaft.

Quality Control Group Holds Neenah Meeting

The American Society of Quality Control, Iowa section, visited the Neenah, Wis., mill, main offices and consumer acceptance laboratories of the Kimberly-Clark Corp., for the society's fall meetings.

Dr. Carl E. Noble, a director of the society and member of Kimberly-Clark's technical staff, was official host. The group heard from members of Kimberly-Clark's staff on how the statistical method of quality control is used in the company's operations, and how it fits into the corporation's sales program.

G. G. Parkin of the Minnesota Mining and Manufacturing Co., is president of the society.

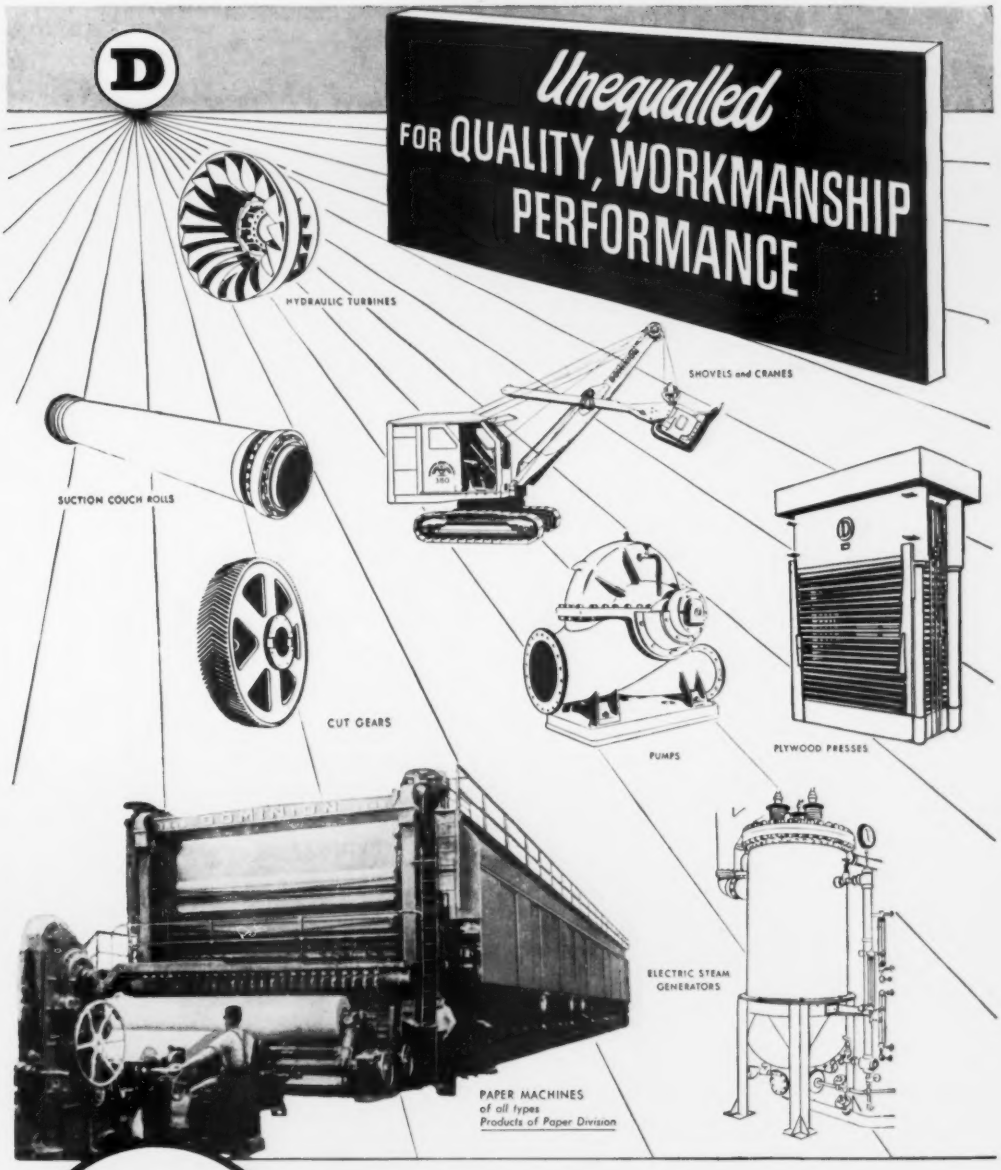
Included on the program were 16 members of the Kimberly-Clark technical staff: John Wollwage, Dick Billings, Robert Stillings, Hector Magnuson, Bob Greenwalt, John Hoffman, John Peters, Chet Halverson, Lee Wolterding, Ken Krake, Glen Strieby, Ed Morrill, Win Day, Carl Noble, Art Bellinghausen and Elmer Hauge.

For Calco In New England

J. Pfister, manager, dyestuff department, American Cyanamid Co., Calco Chemical Division, announces appointment of David T. Cornfoot as assistant to the manager for the Boston office, and W. E. Small as assistant to the manager for the Providence office of the Calco Chemical Division. Cameron Mackenzie will coordinate certain activities between the Calco plant at Bound Brook, N. J., and the Boston and Providence offices.

Mr. Cornfoot, a native of Boston, Mass., joined Calco in 1930. Mr. Small, a native of Somerville, Mass., joined the Calco organization in 1941. Mr. Mackenzie, a native of Providence, came to Calco in 1946.

ARLO WILSON has been named assistant secretary of the Paper Napkin Association, Inc., 122 East 42nd St., New York City. Mr. Wilson has for the past nine years been prominent in association work, and comes to the industry after notable performance as secretary-treasurer of the Naval Architects and Marine Engineers Association.



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PENSACOLA EQUIPMENT ORDERED

Substantial duplication but on a larger scale of the "Alabama" paper mill unit of St. Regis Paper Co. at Cantonment (North Pensacola), Fla., is being effected in the new mill now underway there, with completion by year's end being the goal.

The project includes also expansion of pulp mill and power plant facilities, and building structures with but a limited extension of woodyard equipment.

Completed on March 17, 1948, the "Alabama" mill has a 210-inch Fourdrinier machine capable of 2000 f.p.m. and 250-ton per day rated capacity. It has produced as high as 330 tons of kraft board products in a day's run. (Also at Cantonment is mill No. 2, with a 158-in. Fourdrinier and 106-in. cylinder machine, rated capacity totaling 180 tons.)

The new machine, a Bagley & Sewall Fourdrinier paper machine, will be 228 inches wide, with a speed range to 2500 f.p.m. and rated capacity of 300 tons of multiwall kraft paper per day. Both machines will have ability to produce board as well as bag paper. The new machine will be longer as well as wider than the unit already installed in the "Alabama" mill.

It will have a 120-foot wire, two suction presses and a smoothing press, 70 paper dryers, two calender stacks, reel and winder and hydraulic unloading table. The wet end will be equipped with a Pusey & Jones flow evener and pressure slice. Westinghouse will furnish the sectional electric drive of the single motor generator type. The machine room itself as well as the paper machine will be equipped with latest design of J. O. Ross Engineering Corp. heating and ventilating system, vapor absorption installation, Transite hood and exhaust system.

Stock to the machine will be handled by a 30,000 GPM mixing pump driven by a 300 HP synchronous motor through a magnetic coupling and electronic control. The present twelve Shartle Bros. Miami No. 5 jordans driven by 350 HP synchronous motors will be added to for handling increased stock refining requirements. Additional concrete stock chests with tile linings will be provided and equipped with Shartle propeller agitators. An Impco saveall will serve the machine.

In the pulp mill, extension of capacity will be provided by adding seven 2,200 cu. ft. capacity digesters. The original installation includes five digesters of same size. After cooking, stock will pass through a line of three 8 x 12 Impco brown stock washers provided with the usual filtrate and tank storage. Flat screens, also Impco, will consist of 14 plate units, two to the row, eight rows. Two 8 x 8 Impco thickeners are being added.

RUSSELL G. SEIP (left) long-time Chief Engineer for the operations at North Pensacola, Fla., both before and since acquisition by St. Regis, and HAROLD G. MACKLEM (right), his Asst., and member of a family well known in machinery engineering, are in charge of new mill project.

Additional pulpwood handling facilities will be provided by extending the Jeffrey conveyors that parallel the railroad tracks, providing for handling more cars. Equipment, which includes two Fibre Making Process barking drums, D. J. Murray chippers and Link-Belt chip screens, will operate on a 24 hour basis instead of two shifts. Additional bark will be disposed of through a new bark-burning Babcock & Wilcox Sterling type boiler with Dutch oven, operating at 400 lbs. steam pressure.

Present electrical power generating plant is provided with two Westinghouse 5000 KW turbo generators of extraction condensor type. To these there will be added two 5000 KW turbo-generators furnished by Westinghouse, one being a single extraction condensing machine and the other a single extraction back-pressure unit. The throttle steam will be at 400 lbs., with exhaust at 50 lbs., and extraction pressure at 150 lbs and 50 lbs.

The originally installed Babcock & Wilcox 140,000 lbs. per hour integral furnace, gas burning power boiler will be duplicated. Two Tomlinson type Babcock & Wilcox 125-ton recovery boilers similar to that one already installed will be added, including separately fired super-heaters. Equipment will include cycling dust blowers and Koppers precipitator. The present Swenson sextuple evaporator will be duplicated in the original structure.

In the causticizing plant, the original slaker will be replaced with a larger one, and additional clarifying and thickening equipment will be provided by Dorr Co. An added white liquor storage tank as well as other required tanks will be provided. Another Vulcan Iron Works 8 x 140 lime kiln is to be installed, the sludge feeding being handled by an Oliver thickener. The kiln will be equipped for either natural gas or oil firing. Added water supply is to be provided for by drilling of additional wells within 3000 feet of the mill buildings.

Plans for the enlargement have been provided by the St. Regis Paper Co. engineering staff at Cantonment, Fla., under direction of Russell G. Seip, chief engineer, and Harold G. Macklem, his assistant.

General contract for construction is being executed by Merritt, Chapman & Scott Corp.

Jacksonville Mill Plans Directed from New York

Plans for a new St. Regis mill at Eastport, near Jacksonville, Fla., as previously announced, call for a Beloit machine and the New York headquarters announced production of the two new mills in Florida together would add 225,000 tons a year to St. Regis production, mostly in multiwall bags.

As previously announced, Justin H. McCarthy, for 17 years with Hardy S. Ferguson engineering firm, is in New York.

For the past sixty days Mr. McCarthy has been working from headquarters at 230 Park Ave., New York, on the initial phases of engineering and construction of the new mill to be erected at Jacksonville, Fla.

As this issue goes to press, the company will make no detail announcement of its latest St. Regis addition, but it was understood contracts had been let for the paper machine, electric power equipment, and major boiler installation, as well as evaporating system. The starting plans were somewhat delayed by the death of James Allen, vice president of St. Regis under whose management the Jacksonville mill would have gone forward, and due to these complications Mr. McCarthy would make no statement about the Florida operation. It is believed, however, that the new mill will embody several of the major features which have proved so successful in the Tacoma paper mill (PULP & PAPER description, March 1949 issue) which was erected under the guidance of the widely known engineer.

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Puget Pulp is among the leaders in forest conservation—not only through planned logging and reforestation, but through more complete utilization of the logs. Modern hydraulic barkers and chippers get about 20% more pulp out of a given amount of wood, and "waste" liquors are made into industrial alcohol and its by-product, Lignosite, a valuable material used in improving concrete and for many other purposes. Here efficiency and ingenuity safeguard America's natural resources.

PUGET SOUND
PULP & TIMBER COMPANY
BELLINGHAM • WASHINGTON

400 IN BIG KALAMAZOO MEETING

ONE OF INDUSTRY'S BIG MEETINGS OF YEAR drew 400 to Joint Supts.-TAPPI for dinner in Kalamazoo, Jan. 18. Head table group (l to r): O. W. CALLIGHAN, Mich. Supts. Chairman; DR. ALLEN A. STOCKDALE, NAM speaker of the evening; DWIGHT STOCKER, Toastmaster and Pres., Mich. Paper Co.; JAMES HARRISON, of Michigan Carton Co., TAPPI Chairman.

OVER FOR THE BIG KALAMAZOO MEETING from Michigan Carton Co., Battle Creek, Mich., is this group (l to r): L. S. POYSER, Assistant Superintendent; D. H. LAUER, Night Superintendent; B. H. BILLINGS, Superintendent of the Mill; and PAUL CHARLTON, Tour Foreman. Mr. Harrison, in the picture at left, is Chemical Engineer at the board mill in the corn flakes town.

The big meeting of the year at Kalamazoo—the combined meeting of the Michigan division of Superintendents' association and Kalamazoo Valley TAPPI section drew 400 paper and pulp mill men, and their associates from allied industries, at dinner Thursday, Jan. 18. Four hundred tickets for dinner sounds more like a national convention.

It was a busy evening for everyone. Informal groups got together. Shortages of pulp, chemicals and heavy production schedules were much discussed. Besides the good-fellowship at dinner, the men gathered to hear Dr. Allen A. Stockdale, of the National Association of Manufacturers, and his message "Let's Build a Better America."

Stating that "American industry hasn't reached its peak, and statistics prove otherwise" Dr. Stockdale stressed the need for better information for the employe, who, with the facts in hand, need not fear management.

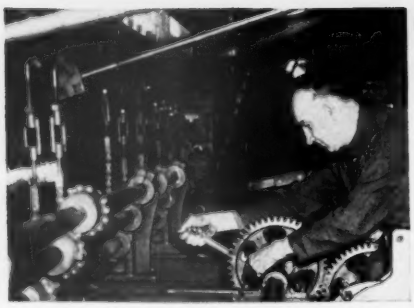
Dwight Stocker, president of Michigan Paper Co., as toastmaster, called for a minutes' silence in respect for the recent death of Ralph Hayward, president of Kalamazoo Vegetable Parchment Co. *(see editorial on Mr. Hayward on Page 33)*.

Frank Hamilton, the current secretary of the Michigan Division of the Superintendents, who was about to leave Kalamazoo and the Allied Paper Co. for the West Coast, was presented a dual-pen desk set. Mr. Hamilton went to Everett Pulp & Paper Co. as technical director. Dr. A. T. Nadelman, who heads the new paper school at Western Michigan College, took over as secretary.

AT KALAMAZOO DINNER (l to r): GLEN SUTTON, National 1st Vice Pres. of Supts. and Supt., Standard Div., Sutherland Paper Co.; WILLIAM KIRKPATRICK, Tech. Director, Allied Paper Mills; and AL. L. SHERWOOD, Sutherland's V. P. in Charge of Engineering.

KALAMAZOO GROUP (l to r): JOHN D. DICKSON JR., Stowe-Woodward Rep. and Supts. Industrial Affiliates Rep.; MERLE R. WILKINS, Tech. Dir. Kalamazoo Paper Co., and ARNOLD WELLER, Supt., Sutherland Div., of Sutherland Paper.

OTHERS AT KALAMAZOO (l to r): A. T. LUEY, Sutherland Paper and TAPPI Section Secretary; J. R. DAM, Allied Paper, and TAPPI Supts. Div. Vice Chairman; JOHN CHANDLER, Buffalo Pump, and M. H. STELLMACHER, Chief Chemist, Rex Paper.



One of the Men Behind Eastwood Wires

Douglas R. Kidde—Wizard of the Looms

Doug knows looms as only a man who has been fixing them for 36 years can know them—inside and out, every single part of the complicated machines.

Here you see him working *inside* a loom. As soon as this machine finishes the warp it's weaving, Doug will return and give it a thorough inspection and overhaul. He does this with *every* loom *after every wire*.

A true craftsman in the finest tradition, Doug is another Eastwood-Nealley employee whose work enables us to offer, with pride, Fourdrinier Wires for the finest paper mills in the country.

EASTWOOD - NEALLEY CORPORATION • Belleville, N. J.

. . . The Swords of Damascus

According to tradition, these keen blades were laboriously hammered at the forge until they resembled the "color of the moon" when quenched. To test the cutting edge, the blade was placed in a slow stream —cutting edge upstream. A piece of silk was floated downstream; if it was severed on contact, the blade was acceptable!

FAMOUS *Blades*

. . . Heppenstall Chipper Knives

These sturdy knives are renowned for their outstanding performance in service—under various conditions—in a great number of mills—over a long period of time. To assure superior knife quality, Heppenstall makes special steels in electric induction furnaces . . . carefully forges and tempers these alloy steels to give you the characteristics you need for a clean-cutting, long-wearing knife. It's no secret that the best knives obtainable are most economical in the long run . . . so why not standardize on Heppenstall K.I.S. Chipper Knives? Heppenstall Company, Pittsburgh 1, Pa. Sales offices in principal cities.

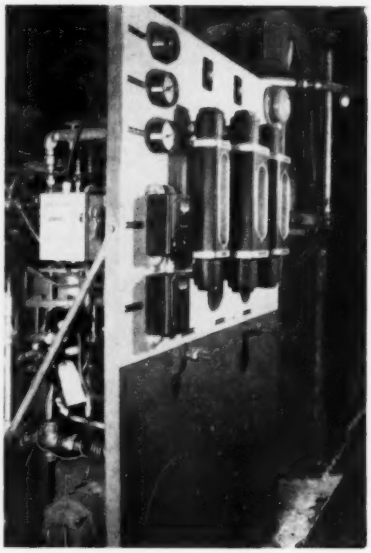
Heppenstall—*the most dependable name in forgings*

NEW EMULSIFIER AT N. Y. MILL

The Sealright operations of Oswego Falls Corp., Fulton, N.Y., recently started up the pioneer installation of the new American Cyanamid type equipment for continuous and automatic emulsification of liquid rosin sizes. The Fulton mill makes groundwood board specialties, milk bottle and other sanitary board on a 102 in. cylinder machine—capacity 75 tons daily.

Current standard practice has for years been emulsification in a batch-type process, thick size (70 to 80% solids) being blown through a steam ejector to give small particle emulsion for injection into the beater stock. While satisfactory when well done, improperly made emulsion can at any time create wet press sticking, felt filing, and non-uniform paper sizing. Current demands of mobilization make such accidents more than costly, and in recent years continuous and automatic emulsion has caught attention; the Cyanamid design equipment, built by American Heat Reclaiming, is one of the first commercial types, and the most recent. It claims to handle bright rosin size to dark-colored sizes, and the Oswego Falls installation lends practical support to Cyanamid's accomplishments in eliminating variables of the batch process, and adding these advantages: close control of size solids concentration; removal of human element; reduction of labor costs; no need for several large dilute emulsion storage tanks; recovery of valuable floor space thereby.

H. M. Gray, director of production of the Sealright Division Co. of Oswego Falls Corp., agrees that these points have accrued in their practical commercial application in the York State mill. While visitors are always welcome to Sealright, he said, the request was made to PULP & PAPER's editor that those wishing to see the equipment in action first apply through Papermakers' Chemicals department of American Cyanamid, 30 Rockefeller Plaza, New York, to the end that mere "sightseers" be eliminated during the present rush for maximum production.



American Cyanamid's New Rosin Emulsifier

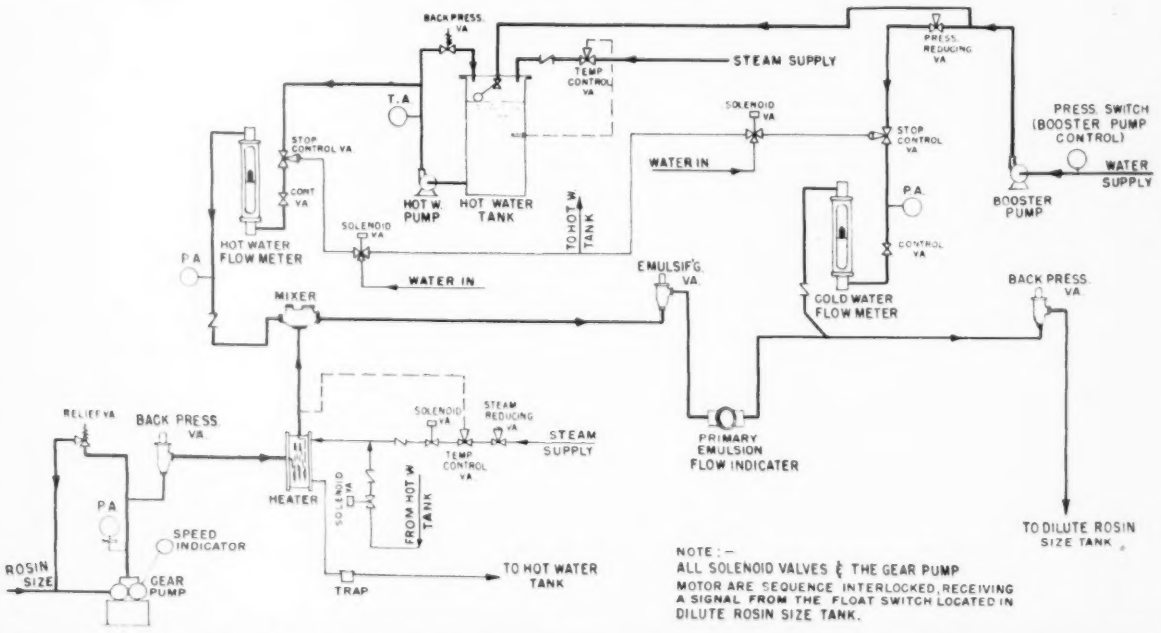
AMERICAN CYANAMID'S new liquid rosen size automatic emulsifying equipment is shown here installed and in operation at Oswego Falls Corp., Fulton, N. Y.

The Oswego Falls installation is typical of others now planned in the industry. A compact, pre-assembled unit, it need only be connected to tank-car rosin storage and a discharge line to but a single dilute emulsion tank. Steam, cold water, and electrical tie-ins completed the installation. As Mr. Gray pointed out in his mill, the equipment takes up little more space than an office desk—actually it is about 5 ft. wide by 4 ft. deep by 6 ft. high. While the needed capacity at Fulton was not available for publication, it is understood that the unit is flexible enough to handle up to 12 tank cars per month with ease.

For Sealright operations it answered the problem of how to add a low concentration size emulsion to the stock system without the costly and now difficult procedure of installing numerous extra storage facilities.

The Fulton mill manager of operations is C. Ives Gehring, and B. F. Seeber is paper mill superintendent.

SOLVAY PROCESS DIV., Allied Chemical and Dye Corp. has filed an application in Washington, D.C., for a certificate of necessity to cover expansion of its soda ash production plant at Baton Rouge, La. The project would add 200,000 net tons capacity.



FLOW DIAGRAM OF NEW AMERICAN CYANAMID AUTOMATIC EMULSIFIER AT OSWEGO FALLS CORP.

Union Experiences
By G. W. Mead

(Continued from Page 39)

our pre-union paternalism was only partly successful here.

Interests Are Not Common

One thing we do not do is to tell workmen that their interests and ours are common interests. They are not common. They are opposed. It is true that employers and men may have certain interests in common, as the quotation from John P. Burke's speech shows. Likewise a buyer and a seller have certain interests in common, but in themselves the interests of buyer and seller are opposed.

But how does this philosophy work out in practice?

Said one of our union men to an inquiring visitor:

"We've had some sweet arguments. We don't always win, and we don't always lose. The big thing is that the management is always ready to 'listen in.' And just you let someone from the management pass the word to the boys that some job needs a special rush and see how they all jump onto it."

It is true that the union men do not always win their arguments. And that is the biggest part of the answer to the employer who fears that when the union comes in his business will be "run by outsiders."

How Seniority Works

Take the bugaboo of the seniority rule, for instance. Must the oldest man in point of service always get the plum when a desirable job is vacant?

Suppose we have a machinetender's job to fill. Our joint labor agreement authorized us to hire an outsider, provided no man in the mill is as competent as the outsider we would get. But we prefer not to go outside. It is our fixed policy to fill all desirable jobs by promotion if at all possible.

But who, inside the mill, is to get this machinetender's job? The men expect that we will promote the man next in line. But perhaps it is our judgment that the man next in line is not sufficiently competent. Therefore we bring up a younger man who seems to us to meet the need.

Very likely the disappointed man's representative will then ask the executive responsible for the promotion why the senior man didn't get the job. If he fails to get satisfaction the case will probably be brought up by the grievance committee at its next meeting with the mill manager.

At this committee meeting the representative of management will report that the man in question was not promoted because he was not competent for the job. This explanation may or may not be accepted without objection by the union representatives. If they themselves question the management's judgment as to his ability, it is likely that his foreman and some others who know his work intimately will be questioned. And sooner or later either someone will admit that "Bill has a hard time holding down the job he has now, let alone tackling a bigger one," or we will be convinced he is good material for the job.

It is quite possible that Bill himself will be sitting in the meeting while his case is before the committee. At first our representative felt a natural hesitation about telling, in the man's presence, that we had withheld promotion because of his own incapacity. But a few experiences taught us that the men prefer frankness and honesty above everything else. When a man lacks ability at one particular job there is generally some other job he can fill. The men know this and they realize that we ourselves take it into account in making transfers.

But perhaps the most interesting part of the working out of this seniority question is the effect it has had on our own policies of training and promotion.

Suppose that when we refused Bill promotion, Bill has been 15 years at his present job. When his case comes before the committee we assert that Bill, though he is the natural candidate for the vacant position, hasn't the ability to fill it.

"But why," ask the union representatives, "did it take 15 years to find this out? Wouldn't it have been better, all this time, to have had a man on the job who could be promoted and to have put Bill on some job to which he was more suited?"

Of course it would have been better. But nowadays we aren't likely to have any 15-year Bills. For, stimulated in large part by this practical viewpoint of the men themselves, we study a man's aptitude for the highest job on a machine when we set him to work on the bottom-of-the-ladder job. We try a man six months as a helper before he gets a regular position either as a helper or as a machine hand. And during those six months he is on trial for his ability to go on up in the ranks of machinetenders just as much as for his qualities as a helper.

What this means to us in the development of a stable force of highly able operators, especially in this day when the quality of our paper is so important a factor, can readily be imagined.

Thus the seniority rule has in our case proved an asset rather than liability.

And it is the same with some of the other rules and agreements.

Rules Regarding Discharges

One of these is that no man can be discharged without having his case subject to review, at his complaint, by the grievance committee. There is no question that in the days before our union agreement, capable men were sometimes discharged by an irate foreman or superintendent for rather slight cause. Under the new arrangement we not only save good men for the company but have lost one or two superintendents who were, it now appears, good riddance. But here again the rule has stimulated an improvement in our own procedures. Today we make no discharge without thorough study and thought. To our minds the discharge of a man is a serious reflection upon the employer himself. Time and careful thought in the selection of men; training foremen to take pride in the progress of their men; study and transfer of men who are not measuring up to what is expected of them; continuous effort to avoid injustice; with all these it should almost never be necessary to "fire" a man.

What this thorough respect for a man's right in the possession of his job means to us, is a thing no man can measure. Surely any man who is free from the fear that something may happen to take his job from him can accomplish more in his daily work than can the man who is haunted by such a fear.

Wage Negotiations

In the fixing of wages we do experience some interference by outsiders. But so far we are none the worse for it.

The wage schedule asked each year by our papermakers is decided upon at a meeting of the international union, which at the same time sets wage scales to be considered by union mills throughout the U.S. and Canada. Two years ago the union advocated a scale of wages which seemed to us to be based upon a fallacy. It proposed that men working at the largest and most modern paper machines should receive a higher wage than men tending machines of lower capacity. To us it seemed that this was a proposal to reward workmen for what was obviously not their own achievement.

So firm we were in our objection to this method that we refused to sign any contract embodying it. We told the union representatives that although we had been very pleased with the results of our several years' dealing with them and should regret very much any termination of the experiment, still we could not see our way clear to signing such an agreement as they now proposed. Apparently we had reached a deadlock.

But what one who has not dealt with the American Federation of Labor does not perhaps realize, is the disposition of its leaders in recent years to be conciliatory. As I have said, we have our arguments in these meetings with the unions; both sides speak the truth freely and fearlessly and stand up for what they believe. But in the end we reach a friendly and practical agreement.

In this instance the union men took a few days to talk and think about the problem. Then they came back to us. Their president admitted as frankly as I had done that they would regret any termination of our relationship. He also said, with surprising candor, that it would be impossible for him to call a strike in our plant. He was still convinced, however, that their position on the wage matter was sound and that in time we would come to their viewpoint.

It was proposed, therefore, that the disputed wage scale be left out of the annual contract and that we take further time to investigate it. A special agreement on the wage scale could be signed later.

And it happened that when we did take further time to consider the new wage proposal, in our own way and under no pressure of personality or of time, we completely changed our mind about the

Union Experiences

(Continued from Page 93)

"fallacy" of paying more for work at the larger machines. We realized, for instance, that what our men are really paid for is to keep the machines going without interruption. The greater the output of a machine, the more serious is an interruption, and therefore the heavier the responsibility of the operators. We found, in short, another indication of a fact we had already observed, namely, that the union men of today pick unusually intelligent and forward-looking men as their leaders.

Foresighted Union Leaders

Recently the foresightedness of the union leaders has been evidenced in their attention to business conditions in the paper industry. The paper industry of America is at present overbuilt. There is an excess capacity of at least 15%. This condition has called forth all the ability that we and other paper manufacturers have to look ahead and safeguard our future. But I sometimes think the union leaders, who are close students of economics, saw what was coming before we did.

At any rate they recently asked us and our employes to "take our share" of lessened business. That is, instead of each mill fighting to keep 100% busy by cutting prices or sacrificing standards of quality, they would like to see each one running, let us say, 85% of its capacity, with normal prices and improved quality. Similarly they would like to have each man in the mill take his share of the slack instead of seeing part of the men continuously employed and part of them out of work. In line with this policy our men suggested, last fall, that we shut down on Thanksgiving Day which is not one of the holidays agreed upon in our annual contract.

In the long run this may not be the best possible method of meeting the great problem of how to make men secure in their jobs at a time when the jobs of some are threatened by current business conditions. On the other hand it is at least a method which is better than no method at all. And it has the advantage both of being cooperative and of inspiring further cooperation.

A still further advantage is that it enables us to continue our use of the strongest weapon we have nowadays: Quality of product. As we told our foremen recently, "Competition has veered away from price and has placed the keen conflict upon quality. Buyers are not demanding a lower price nor threatening to place their orders with others at a lower price. But they are insisting upon a higher degree of quality than ever before and are getting it."

In other phases of our relations with the unions, results have been equally satisfactory. No subject is too large, none too small to come up in our grievance committee meetings or our annual negotiations. But no matter what the subject, the discussions are marked by the utmost truth and sincerity, and give-and-take on both sides. We find the men very receptive to our undertakings toward economy, even when these mean that fewer men will be employed, and very willing to modify their pet rules, such as not having non-union men come into the plant for construction work, when they see that a rule blocks the path of efficiency. The union organization, through its grievance committee, is also of help to us in many management decisions because facts come out in our discussions that would otherwise be hidden.

For nine years now our experiment with unions has been successful. It may not always be so. But so long as it is successful we shall, I imagine, continue to prefer dealing with unions to any alternative method.

S. T. MACKENZIE, head of the Philadelphia office of The Babcock & Wilcox Co., is appointed to the newly created post of sales manager of the company. Previously W. T. McCullough, Jr., vice president, handled duties of sales manager. Mr. Mackenzie will headquarter in New York.

FINNS USE PYRITES

(Continued from Page 35)

produced per day from the burning of about 70 tons of moist pyrite or roughly one ton of steam to one ton of pyrite.

The gases are put through a washing tower and then cooled to 40 degrees Cent., passed through Cottrell precipitators, and finally to the acid tower, where SO_2 are impurities are separated from gas and impurities.

In the Lurgin process some of the mills dry precipitators and washing towers as in the process previously described. The gases are cooled to below 40 degrees Cent., and then passed to wet precipitators. In some plants, dry precipitation, whose purpose is to remove flue ash, is eliminated, as the washing tower can usually accomplish the same result if enough acid is used. It is important that gas in the washing tower be kept moist. At the Kymmene Aktiebolag plant the precipitators are made of lead.

The company is a fully integrated operation, producing newsprint as well as fine papers and board on 13 machines in three mills.

"We have been obliged to economize in sulfur use for some time in Finland, and we think we have done better in this than you have in North America," said Mr. Sucksdorff. "We use only about 11 tons of sulfur equivalent per 100 tons of finished pulp, compared with what I believe 12 to 14% in this country.

"How do we achieve that? Well, first of all, we allow more time for the cooking cycle. Before the digesters are emptied we provide a longer time for the gases to be recovered. We prevent wastage of sulfur by not blowing the digesters. We simply relieve pressure from the top of the digesters and then dump from the bottom, and in that way we believe we are getting much better heat recovery as well as SO_2. Actually we are not content even with 11% sulfur use; we are aiming at 10%."

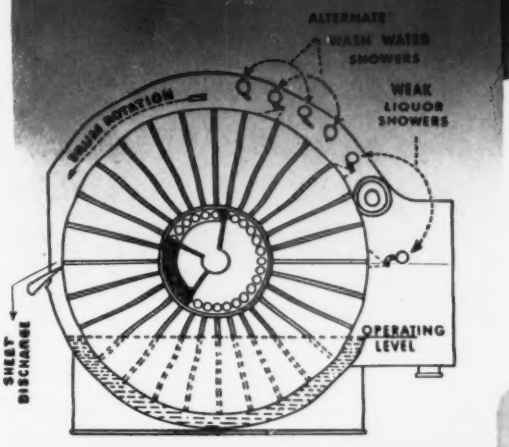
Generally speaking, Finland's digesters are larger than those commonly in use on this continent—about 10,300 cubic feet capacity in some cases.

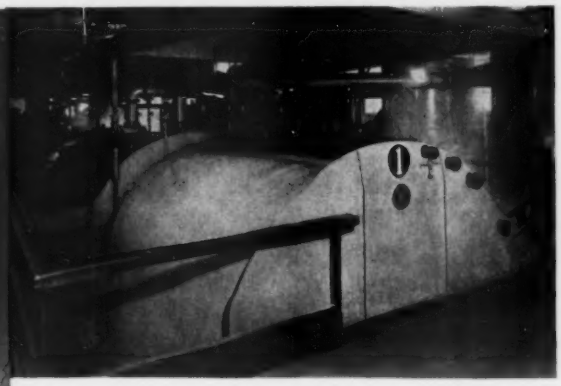
Messrs. Sucksdorff and Michelsson say that Finnish mills, although badly run down during the war period because of the difficulty in getting new equipment, returned to pre-war capacity, close to 100%, in 1950. As a result of the new boundaries, Kymmene lost two mills. Finland's pulp and paper trade is with countries outside the Iron Curtain. At the beginning of 1950 Finland still owed Soviet Russia reparations the equivalent of $27,000,000, but none of it was to be paid off in pulp or paper—"which makes it harder," added Mr. Sucksdorff.

Both Finnish experts plan to visit many North American mills on their present tour.

Washes Sulfite Pulp – 2 stages on 1 drum

SWENSON-NYMAN PULP WASHER





Swenson-Nyman Pulp Washers of the type used for sulfite pulp

The diagram at left illustrates a sectional view of a Swenson-Nyman Pulp Washer, and the valve arrangement for maintaining separation of strong and weak sulfite liquors. Pulp emerges well washed at high consistency; with less dilution, thus reducing evaporation costs.

Swenson Spray Dryer converts sulfite liquor to dry powder in 30 seconds. Information on request.

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- Pulp Washers • Deckers • Filters
- Digester Blow Condensers
- Surface Condensers
- Turpentine Condensers • Causticizers

MONTREAL MEETING

(Continued from Page 44)

ker, the Foxboro Co., who said that the goal could be a "push button-controlled mill," wherein pulp stock could be brought to the machine with all variables under control to permit machine speed of 3000 feet per minute. Mr. Yunker believed study of automatic control over processes in the oil and chemical industries would be beneficial.

Wood Burning Discussed

Value of wood-fuel analysis in boiler design was the subject of a paper by W. H. D. Clark, Combustion Engineering-Superheater Inc. featuring discussion of heat and power, during which the Squier bark press, American Defibrator Co.'s screw press, Fibre Making Process (Horton Steel) stoker grate, the Swedish Waplan bark press and Foster-Wheeler processes were described.

Frank Hamilton Goes To Everett Pulp & Paper

Frank Hamilton (in picture), has been appointed as technical director of Everett Pulp & Paper Co., at Lowell, Wash., suburb of Everett, according to William J. Pilz, president and general manager. Mr. Hamilton, who was with Allied Paper Mills, Kalamazoo, Mich., for 13 years as assistant superintendent and formerly, as assistant technical director, has arrived at his new post.

Just before this picture was taken at Kalamazoo by PULP & PAPER, Mr. Hamilton was presented a dual desk pen set by the Michigan Superintendents Division for his services as its secretary.

Equipment Ordered For Elk Falls Mill

Elk Falls Co., building a newsprint mill near the mouth of the Campbell River, Vancouver Island, (owned by Pacific Mills, Ltd., and Canadian Western Lumber Co.) has already authorized purchase of over $3,000,000 in equipment.

Biggest order, as we reported previously, went to Dominion Engineering Co. for paper machine and winder, to cost more than $1,800,000.

Companies awarded orders representing more than $200,000 each are Waterous, Ltd., for grinders and wood-handling machinery; Canadian Westinghouse Co. for motors and controls; Bepco Canada Ltd., for paper machine drive.

Others were for Oliver United Filters; Ross Engineering, hood and ventilation; Hydraulic Machinery, screens; Canadian Ingersoll, compressor and screens. Howard A. Simons is consulting engineer.

New Central Development Lab for Crown Zellerbach

Crown Zellerbach Corp. will immediately build a large, modern development laboratory for its Central Research Department at Camas, Wash., according to announcement made in San Francisco by Vice President A. B. Layton, in charge of the company's research and development. He pointed out that the addition will be unique in the industry as it will bring together under one roof a complete experimental paper mill with multi-purpose converting equipment.

A Pusey & Jones Corp. experimental paper machine trimming 24 in., has been obtained. This combination Fourdrinier-cylinder section machine will be equipped with variable-speed drive permitting wide range of speed variation. Although not as fast as large machines, it will be possible to standardize to approximate mill conditions with high accuracy. Other equipment will include experimental digester, chipper, refining, and bleaching facilities. An all-purpose coating and impregnating machine is to be installed.

The new development laboratory will permit experimental runs to be made without interruption and loss of production in the large mills.

The Central Research Department is an outgrowth of the Central Technical Department set up some 15 years ago and moved into a new building in late 1939. With resignation of W. R. Barber as technical director two years ago, the name became Central Research Department and is headed by Dr. W. W. Moyer. Central Research handles all C-Z research and development work other than those problems peculiar only to specific operating mills.

Most work in the new laboratory will be carried on under Dr. Walter F. Holzer, assistant director of research. Dr. W. M. Hearon, assistant director of research, will continue to carry on fundamental applied research in the research laboratory.

Ultimate plans, according to Mr. Layton, call for a new research laboratory adjacent to the development laboratory.

JUDGES
How do you judge a SCREEN PLATE?
NOT BY LOOKS ALONE
If you are like most paper people you want a plate that is durable and rugged enough to stand up to hard knocks while doing its job efficiently.
We can show you a good list of customers who say UNION SCREEN PLATES are durable and rugged and UNION SCREEN gives tops in service
STAINLESS METALS
CORROSION RESISTANT BRONZE
BRONZE FLAT AND CYLINDRICAL PLATES
"CHANNEL BACK"
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"CORROSIST"
TRADE MARK REG. U. S. PAT. OFF.
Pacific Coast Representatives:
PACIFIC COAST SUPPLY CO.
PORTLAND, OREGON
PP-15

Personals

News About Industry People
From Coast to Coast

J. H. TOUCHSTONE, Laurel, Miss., well known figure in the Southern pulpwood field, succumbed to injuries received in an automobile accident. For the past 12 years he had represented Sandvik bow saws in Southern territory.

C. W. E. LOCKE, formerly resident manager for Pacific Mills at Ocean Falls, has been appointed chief engineer for Bloedel, Stewart & Welch, at Port Alberni, B.C.

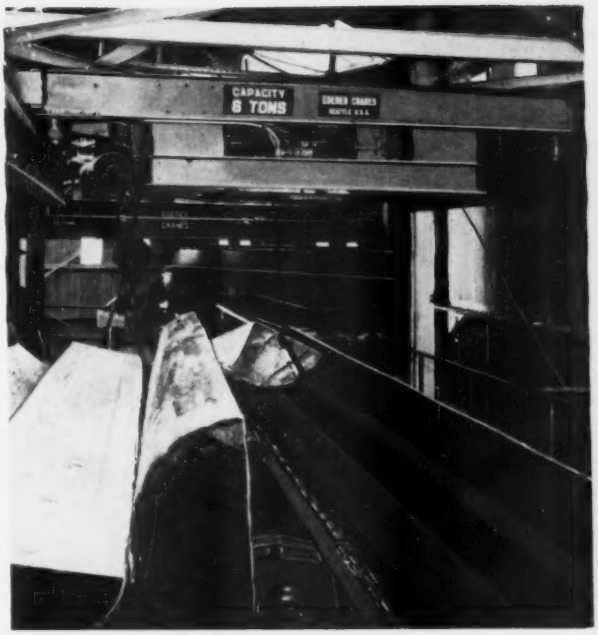
R. L. KERRIDGE is now assistant to *WALKER HAMILTON*, executive vice president of Riegel Paper Corp., New York, and moves to 342 Madison Ave. from the Upper Mills where he was manager; he was elected a director last fall. Other changes announced by Mr. Hamilton: *ALLEN SCHENCK* assumes duties of technical superintendent at Highesville and Riegelsville Mills; *A. L. M. BIXLER* continues as superintendent of the Warren Mill; *J. B. LOCKHART, JR.*, continues as assistant to the vice president in charge of production but assumes additional responsibilities of production planning for Hughesville, Riegelsville, and Warren Mills.

JAMES W. HORNING JR., on leave from sales service, box division, Union Bag & Paper Corp., Savannah, was killed in action in Korea. His stepmother, *MRS. ANN HORNING*, is in the Union Bag Accounting Division.

GERALD A. GRIMOLDBY, one of the four digester cooks at the new kraft pulp and paper mill of Potlatch Forests Inc., Lewiston, Ida., traveled farthest of any of them to his new job. He was veteran kraft cook at Minnesota & Ontario Paper Co., International Falls, Minn., and had been with that company for 22 years.

C. E. O'CONNOR, JR., has been elected vice president of Diamond Match Co., New York City, announces the president, *ROBERT G. FAIRBURN*. Mr. O'Connor has since 1947 been special assistant to the president, a post held since the acquisition of B-F-D Co. by Diamond Match; he was vice president of the former at that time.

D. A. MORAN, resident manager of the Deferiet, N. Y., mill in St. Regis' Printing, Publication & Converting Paper Division, will also be responsible for the Harrisville mill in that division. Sherman F. Valentine continues as resident manager at Harrisville, reporting to Mr. Moran, and William A. Argy as mill manager.



ANGLE PULLS ARE *Easy*
WITH AN EDERER CANTING CRANE

Jerk 'em . . . pull 'em . . . lift 'em!! This EDERER custom-built canting crane was engineered and built with just the right lift, capacity and angle pull to release jammed logs and cants from conveyor and chipper with the greatest of ease. In the plant where it is working, the costly delays saved has resulted in plenty of dollars saved.

This is only one example of many EDERER cranes, custom-built for the pulp and paper industry, at work in leading plants throughout the area. An EDERER engineer will be glad to discuss your special job requirements.

★ *Custom Builders to the Pulp and Paper Industry*

50th ANNIVERSARY YEAR
EDERER
ENGINEERING COMPANY
2931 FIRST AVE. SO. SEATTLE 4, WASH.

EXPORT DIVISION
301 CLAY STREET
SAN FRANCISCO 11, CALIF.

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Stand-By Cranes • High Lift Cranes • Calender Cranes • Reel Cranes • Monorail Hoists

Many Changes in Sales Staff of Titanium Pigment

Election of Graham W. Corddry as vice president in charge of sales of Titanium Pigment Corp., subsidiary of National Lead Co., is announced by Joseph H. Reid, manager of National Lead Company's Titanium Division.

K. W. Ericson, formerly western sales manager of the corporation, has been appointed general sales manager, succeeding Mr. Corddry. H. L. Jungmann will continue as assistant.

John A. Lutz, former manager of technical service, has been appointed eastern sales manager, succeeding W. H. Woods, who succeeds Mr. Ericson as western sales manager in Chicago.

E. G. Burling continues as Pacific Coast sales manager, in Los Angeles.

Earl W. Diener is new district sales manager for New York, New England and Pittsburgh areas. W. F. Malcolm will be in charge in New England, succeeding Mr. Diener with headquarters in Boston.

Norman E. Olson has been appointed district sales manager of Chicago area and Midwest and South, west-of-the-Mississippi offices in Chicago.

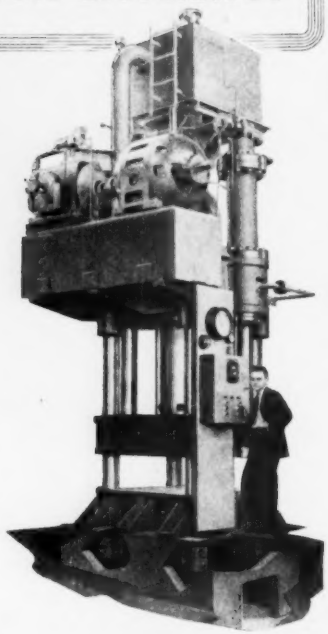
Fred R. Hodgson has been named district sales manager for Cleveland area and Midwest and South, east-of-the-Mississippi, headquarters in Cleveland.

W. Schoonmaker continues as district sales manager of Philadelphia area and Southeastern states, headquarters in Philadelphia.

James MacGuffie has been appointed manager of the technical service department, headquarters in New York.

ENGINEERED & MANUFACTURED FOR PRODUCTION EFFICIENCY

- Hydraulic barkers
- Paper dryers
- Pulp balers
- Hot presses
- Logging equipment



The 1,000-ton, rapid traverse pulp baling press shown at right is one of two recently delivered by Washington Iron Works to a major West Coast pulp plant. They are completely automatic, with advantages in speed, ease of loading and efficiency of operation.

Specialized experience, integrated manufacturing facilities and centralized responsibility—applied to both standardized and custom-built equipment for logging, pulp and paper, plywood and hardboard production.

WASHINGTON IRON WORKS

Since-1882

WASHINGTON IRON WORKS

1500 6th Avenue South, Seattle 4, Washington • EL 1292

HAROLD R. ALLEY, who has been appointed Manager of the newly-created barrier and packaging sales division of Charles E. King & Co., Chicago paper merchant and converter. This department will specialize in supply of specification materials for domestic and export packaging to war agencies and war contractors. Mr. Alley recently returned from a year in the Far East where he served as a Pulp and Paper Specialist in the general headquarters of the Supreme Commander of the Allied Powers, Tokyo, and an industrial engineer in the Army Department in the Ryukyus Islands.

Drupa-Dusseldorf 1951 Exposition

Since the war the graphic trade and the paper industries of West Germany repaired most of their damage and regained pre-war capacity. As for more than 10 years no special exposition was held for these important branches of the industry in Western Germany, their associations have chosen the city of Dusseldorf as an exposition place. This exposition is called DRUPA, for Internationale Messe Druck und Papier International Exposition Printing and Paper, and will be held from May 26 to June 10.

New Seal for Pumps

A new type shaft seal—the "Equiseal" stuffing box—has been developed to eliminate leakage on Allis-Chalmers process pumps.

The "Equiseal" sleeve is basically a radially vaned sleeve which rotates with the shaft to create a pressure which equalizes the suction pressure. As a result, atmospheric pressure exists on the pressure side of the stuffing box as well as outside to eliminate leakage. The new seal has been designed for use on all Allis-Chalmers process pumps with suction heads up to 15 feet at 1,750 rpm. or six feet at 1,150 rpm.

A. R. WEBB, of Pacific Mills, has been elected chairman of a newly organized lower mainland branch of the Pacific Coast Technical Section, Canadian Pulp and Paper Association. *LOUIS PUMPHREY* of Westminster Paper Co., is vice chairman, and *MEL OKE*, of Vancouver Paper, secretary-treasurer.

HONORED FOR SERVICE:
Top (left to right): MARATHON CORP.—Wm. L. Keady, Pres. and Gen. Mgr.; Oliver Baenke; John Baenke, his 75 yr. old father; Al Baenke, another son, and D. C. Everest, Board Chairman. Honored at Menasha, Wis., the elder Baenke served 33 yrs.; his sons, 30 each. Mr. Everest's service totals 40 years. Roy Sund, Vice Pres. for Mfg., and R. C. Flom, Sales Promotion Mgr., got 25 yr. pins.

Middle group: CROWN ZELLERBACH, West Linn, Ore.—Malcolm Otis, Res. Mgr., (at left), receives 30 yr. pin from Pres. J. D. Zellerbach (right). Ray Dupuis, Asst. Res. Mgr., shown in inset, received 20 yr. pin.

Below (left to right): CRYSTAL TISSUE CO., Middletown, O.—E. E. Grant, Pres., awarding 25 yr. service watches to Hiram E. Reed, Machinetender; Joe R. Meadows, Machine Room; Calista Van Horn, Asst. Treas., and L. J. Long, Vice Pres.

Bagprint Machinery Bought by Valley Iron

Valley Iron Works Co. of Appleton, Wis., has purchased the Bagprint Machinery Corp., Royal Oak, Mich., builders of high speed specialty flat and square bag machines, aniline printing presses, rewinders and slitters, variable speed electric and mechanical drives.

Headquarters of Bagprint have been moved to Appleton but the company will retain a sales office in Royal Oak. Walter S. Ryan, former president of Bagprint, will remain as sales manager.

1881 OLD TIMERS 1951

SIXTY SEVEN YEARS IS A LONG TIME

As we look back and count up and re-count the friendships won and held during this time—we know our business policy is correct. This policy is—To offer a lining and tile tank service of the highest character obtainable—priced on a just, reasonable and equitable basis. In short, there is no juggling with figures so as to give "a little more for a little less".

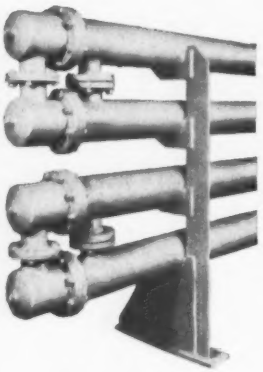
We shall continue to base our quotations on a lump sum contract, under which Stebbins supplies all required materials, supervises the installation and turns the completed job over to the customer ready for use. On this basis our service is always dependable and trustworthy.

There is no substitute for "Know-how" based on years of experience.

SEMCO

Stebbins Engineering Corporation

TEXTILE TOWER SEATTLE 1, WASHINGTON



Full Contra-Flow Multi-pass
Heat Exchanger Assembly

Stainless Steel

Spray Liquor Coolers

for

Absorption and Cooling

Towers

☆

ALASKAN COPPER WORKS

DESIGNERS and FABRICATORS

"Since 1913"

Seattle Wash.

Wise Elected President; Griffith Now Chairman

Franklin T. Griffith was elected chairman of the board of Griffith Rubber Mills, Portland, Ore., at a recent meeting of stockholders, and Zina A. Wise was elected to succeed him as president.

Mr. Griffith, president for many years, is a prominent Portland attorney and business executive. Mr. Wise, had been manager of the mill since 1933. Both have been active in Portland organizations and Mr. Wise now heads the Multnomah County March of Dimes campaign.

Other officials re-elected are H. G. Wise, vice president; Clarence D. Phillips, secretary; and John J. Coughlin, assistant secretary.

The mill, established in 1911, manufactures over 3,000 rubber items.

WANTED

Engineering draftsmen for drawing board work on heavy machinery. Men with paper mill experience preferred. State age, experience and salary expected.

The BAGLEY & SEWALL COMPANY
Watertown, New York
Phone 1200

NATIONALLY KNOWN MANUFACTURER plans enlarged sales organization on Pacific Coast and would be interested in hearing from other manufacturers of machinery sold to the pulp and paper mills, plywood and other wood-using industries. Object: to arrange for distribution of their lines on Pacific Coast from central warehouse San Francisco and sales offices Northwest and California. Please reply to P&P Box No. 91, c/o PULP & PAPER, 71 Columbia St., Seattle 4, Wash.

Gammon Heads South District For NOPCO Chemical Co.

John N. Gammon has been named Southern district manager for NOPCO Chemical Co., Harrison, N. J., and Cedartown, Ga., according to a statement released today by G. D. Davis, vice president in charge of industrial sales. He succeeds George H. Small who passed away on Oct. 12.

A native of Griffin, Ga., Mr. Gammon was graduated from North Carolina State College in 1931. He joined NOPCO and spent almost two years in the company's Harrison laboratories and plant, then five years in the sales office. In 1938 he became sales representative in the Ohio-Michigan-Indiana area and has been district manager since 1946.

With sales office and plant at Cedartown, NOPCO is well-geared to serve the Southern paper industry.

The Southern district comprises Tennessee, South Carolina, Georgia, Louisiana, Mississippi, Alabama and Arkansas. Mr. and Mrs. Gammon and three daughters will make their home in Cedartown. In the Central district, Mr. Gammon will be replaced by Travis V. Rankin.

WANTED: Complete file, all issues, PULP & PAPER from July, 1945, to date. Please reply to P&P Box No. 90, c/o PULP & PAPER, 71 Columbia Street, Seattle 4, Wash.

MANUFACTURER of valves desires connection with sales representatives contacting the pulp and paper mills in the Mid-west and Southern states. Please reply to P&P Box No. 92, c/o PULP & PAPER, 71 Columbia St., Seattle 4, Wash.

VERNON L. GEORGE (left), in Bingham's Chicago office, graduated in m. e. from Illinois Institute of Technology.

FRANK NAVRATIL (right), based in New York, graduated in m. e. from Newark College of Engineering.

BINGHAM PUMP CO., Portland, Ore., carrying out the expansion of its activities in the pulp and paper and other fields throughout the country, have stationed these young men in the Middle West and East.

Wisconsin Paper Group Elects Bergstrom

The annual meeting of the Wisconsin Paper Group, non-profit organization for providing scheduled pool carload delivery service to customers of 34 Wisconsin paper manufacturers and converters, with offices and warehouse at 411 Garfield Ave., Menasha, Wis., was held Jan. 20 at nearby Neenah. A luncheon was attended by 91 executives representing 22 member mills.

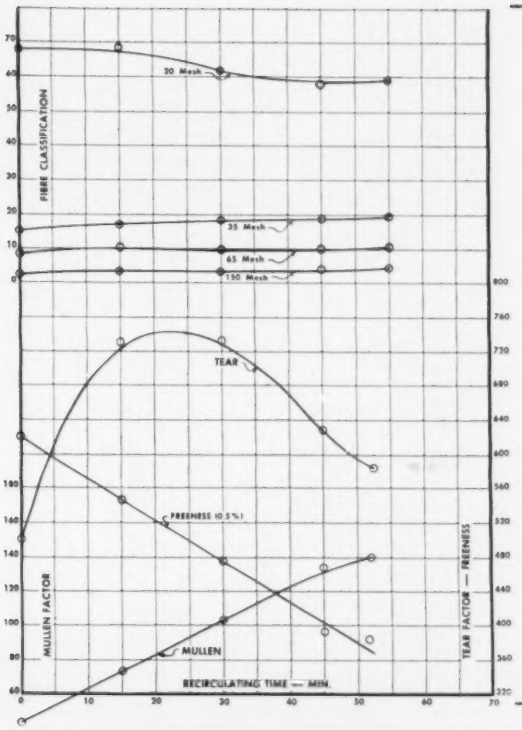
William L. Keady, president and general manager of Marathon Corp., in an address, urged every American to insist that the administration answer the question "What are we trying to accomplish—what is our national policy?"

Nathan H. Bergstrom, Bergstrom Paper Co., Neenah, was elected president. David B. Smith, Wausau Paper Mills Co., Brokaw, was elected vice president. Leo O. Schubart, Neenah Paper Co., was re-elected secretary-treasurer. The following were re-elected to the executive committee: W. K. Gerbrick, Central Paper, Menasha; Douglas G. Hyde, Marathon; O. W. Johnson, Rhinelander; G. E. McCorison, Thilmany Pulp & Paper; A. C. Remley, Nekoosa-Edwards; W. L. Thornton, Jr., Kimberly-Clark, and L. R. Watson, Tuttle Press, Appleton.

Stan Wilkes Plans Return to Industry

Stanley A. Wilkes, former mill manager of the government-owned kraft pulp and paper mill, Compania Industrial de Atenquique, S. A., built a few years ago at Atenquique, Jalisco state, Mexico, has decided to sell his farm at Hardwick, Vermont, and return to the industry. He planned a visit to Southern kraft mills, where he was formerly an assistant superintendent and papermaker in the International Paper Co. organization and at National Container in Jacksonville.

Mr. Wilkes, born in the North at Buffalo, and a Vermont papermaker early in his career, decided the northern climate was too rugged for him and Mrs. Wilkes after so many years in the South. He helped build and start up the Mexican mill, serving four years there under contract.



No. 2 CLAFLIN HYDRATING FILLING

175 HP—400 RPM

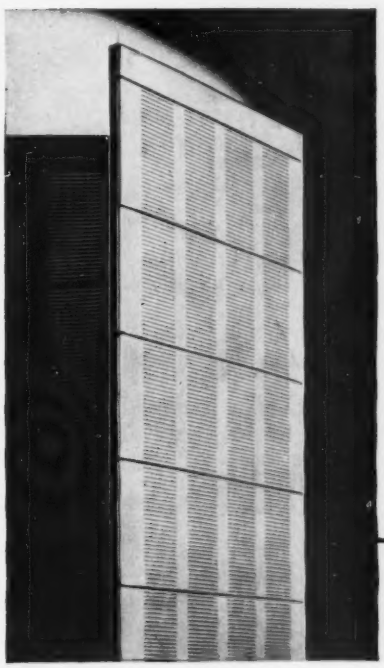
"Bleached Southern Kraft Pulp"

Rate: 8000#/Hr. — 3½% Con.
15' Req'd to Pass 2000#

Pulped Stock pumped from Chest (1) to Claflin to Chest (2) and from Chest (2) to Claflin to Chest (1) insuring uniform treatment.

THE HERMANN MFG. CO.

LANCASTER, OHIO



Here's Why More Than

30,000 FABRICATED SCREEN PLATES

Are Now In Service

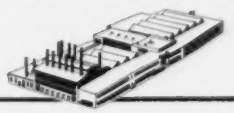
"Hardy" fabricated screen plates, made by Magnus, have a high-strength, thin-sheet design—specially engineered for maximum flow. That's why you're sure of these 3 service-proved advantages:

1. Increased Plate Capacity—The thin sheet eliminates relief milling, and with recommended arrangement, substantially increases capacity per plate.

2. Longer Life—Slots remain sharp, side walls highly polished for the life of the plate. There's greatly improved corrosion resistance.

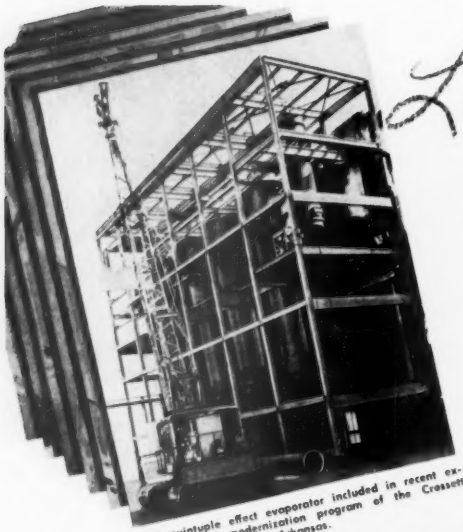
3. High, Sustained Yield—You get consistent, uniform quantities of cleaner pulp.

It all adds up to improved performance at reduced operating costs. Complete information is yours on request. Or if you like, we'll gladly have an engineer call.



MAGNUS METAL CORPORATION, *Fitchburg, Massachusetts*
Metalworkers for the Paper Trade

SCREEN PLATES: BRONZE, CHROME-NICKEL-STEEL, AND INCONEL
VALVES: GATE, SWING CHECK, BLOW, GLOBE, ANGLE AND "Y"



G-B quintuple effect evaporator included in recent expansion and modernization program of the Crossett Paper Mills, Crossett, Arkansas.

Look to GB for Evaporators

of Maximum Capacity and Economy

In recent mill expansion and modernization programs G-B has played a leading role in evaporator design and fabrication. G-B's experience and design engineering background assure the utmost in economy and performance for new evaporator installations.

In designing evaporators for maximum operating capacity, special attention is given to highest practical steam economy with minimum losses due to entrainment. G-B engineers are at your service any time for discussion of your evaporator problems.

GOSLIN-BIRMINGHAM MANUFACTURING CO., Inc.
BIRMINGHAM, ALABAMA
CHICAGO: F. M. deBeers and Associates, 20 North Wacker

FOR THE PREPARATION OF WOOD PULP

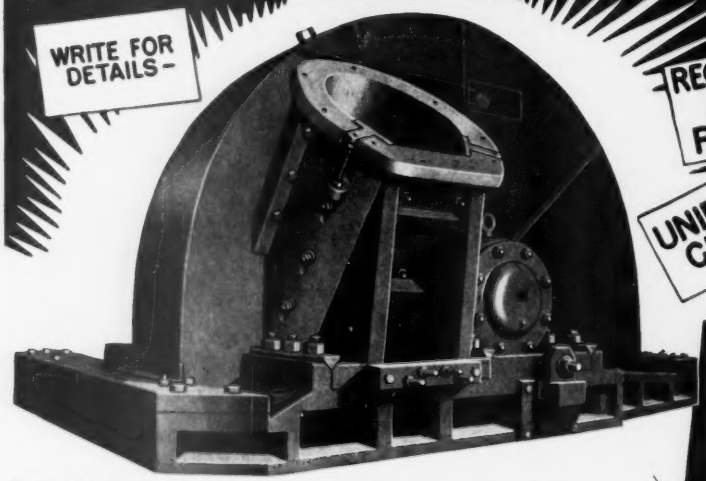
WRITE FOR DETAILS–

REQUIRES LESS POWER

MINIMUM SAWDUST

UNIFORM CHIPS

PRO-DUCTION RECORDS–



MURCO MULTIPLE KNIFE CHIPPERS

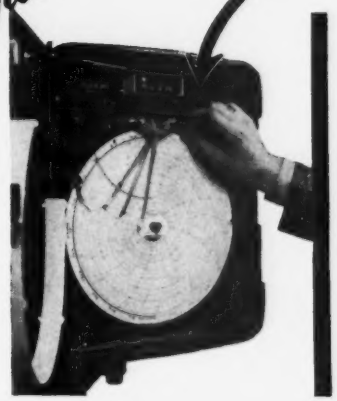
Designed to fit the job, MURCO Chippers are real heavy duty machines, with features that contribute to their outstanding performance and record achievement . . . Standard sizes 50 to 120 inches (large sizes for special installations). Write for complete details.

D. J. MURRAY MANUFACTURING CO. WAUSAU WISCONSIN
Manufacturers Since 1883

MURCO

Accurate Consistency Regulation which can be CHANGED by just a turn of a knob

BRAMMER *recording consistency control*



Maintains accurate, 24-hour chart of stock consistencies . . . recording regulated consistency and indicating consistency of unregulated stock entering flow box.

The constant recording on chart permits operating personnel to see and know that accurate, uniform consistency is maintained, and that the incoming stock is always above the desired consistency thereby permitting constant stock control.

Bulletin B2 upon request

Patented and Patents applied for in U. S. A. and Foreign Countries
Manufactured and sold in Canada by Alexander Fleck Limited, Ottawa, Ontario

PAPER and INDUSTRIAL APPLIANCES INC.
122 EAST 42nd STREET ● NEW YORK 17 N. Y.

EXTRA! EXTRA!

NEW EXTRA WIDE EXPANDER ROLL HANDLES PAPER UP TO 246" WIDE!!

Mount Hope

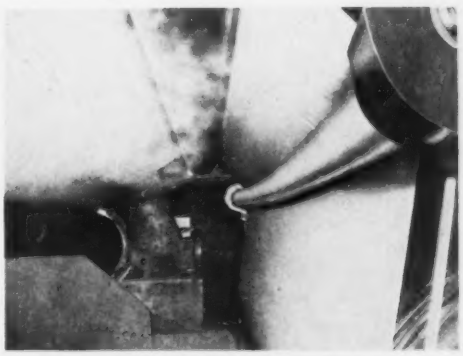
7" OD FREE WHEELING EXPANDER

The addition of the 7" OD to Mount Hope's line of Expanders fulfills the requirements of the paper industry for continuous, trouble-free production.

1. Eliminates wrinkles and creases.
2. Maintains maximum width of paper.
3. Assures continuous operation—the free turning roll prevents paper spoilage—does away with costly waste and stops.

The Mount Hope 7" OD Expander is the largest and the widest Expander now in use. The Neoprene-covered rolls, supported by steel ball bearings spaced along the entire face, account for its extremely free turning properties—assuring maximum capacity and long service.

Mount Hope Expander Rolls range from 1½" to 7" in diameter, and are successfully handling paper, textiles and plastics from 4" to 246" wide.



This 7" OD Expander has a 240" width of face with a 281⅛ overall, 4⅛ diam. axle and is installed following a size press at the Champion Paper Co., Canton, N. C.

Write now for Bulletin EPW or a Mount Hope Engineer will be glad to advise on your particular requirements. No obligation.

MOUNT HOPE MACHINERY COMPANY, 15 FIFTH STREET, TAUNTON, MASS.

MOUNT HOPE FREE WHEELING EXPANDER

Gee, Mr. Smith... you say the funniest things!

Sec: I never worked for a paper mill before. You use the funniest words! "Railroading!" "Crush!" What do they mean?

Sup: They mean trouble . . . and plenty of it! When the nip squeezes water from a sheet faster than the felt can take it, the water "railroads" back toward the wet end until there's so much water trapped there it "crushes" through the sheet.

Sec: Then "railroading" means water traveling back along the felt . . . and "crush" means bursting through the paper. Right?

Sup: Young lady, you've said it! And we lick "railroading" and "crush" by using the right felt.

Sec: How can you be sure it's the right one?

Sup: By making the Hamilton Felt Man responsible for selecting the right felt for the work we're doing and the speed we need to get.

SHULER & BENNINGHOFEN

HAMILTON, OHIO

MIAMI WOOLEN MILLS Established 1858

Hamilton Felts

SALT TRONA CAKE

Trona Salt Cake—an anhydrous form of sodium sulphate—is free from insolubles and of consistent quality.

These properties—plus the high Na_2SO_4 content of Trona Salt Cake — have made this product particularly useful to papermakers everywhere.

AMERICAN POTASH & CHEMICAL CORPORATION

3030 W. 6th Street Los Angeles 54, Calif.

Better Paper--Longer Felt Life

Lower Production Costs with

MANHATTAN RUBBER COVERED ROLLS

Pictured here are 2 of 8 Manhattan Rubber Couch Rolls with 2" thickness cover and sealed ends, installed on one of the nation's largest board machines. In all, 46 Manhattan Rolls were installed on this machine, including plain and wormed felt rolls, suction press rolls, top and bottom press rolls, and draw rolls.

For complete freedom from roll worries, let Manhattan handle all your roll covering problems.

Pacific Coast Representative:
DAN E. CHARLES AGENCY, 1331 3rd Ave., Seattle 1, Washington
Roll Covering Plants at Neenah, Wis. - Passaic, N. J. - North Charleston, S. C.

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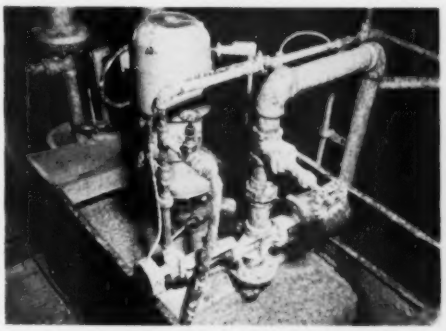

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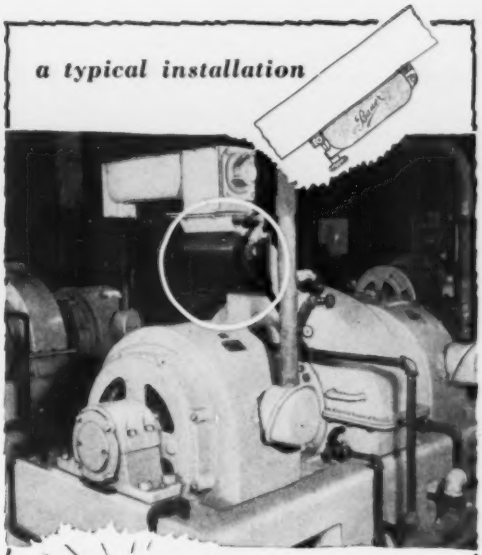

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magnetic separators protect machinery and product

The photograph shows a Bauer Triple-Air-Gap Permanent Magnetic Separator installed in the chute which feeds chips to a Bauer Pulp Refiner. Obviously, the purpose of the separator is to catch tramp iron and steel.

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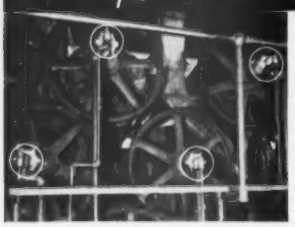

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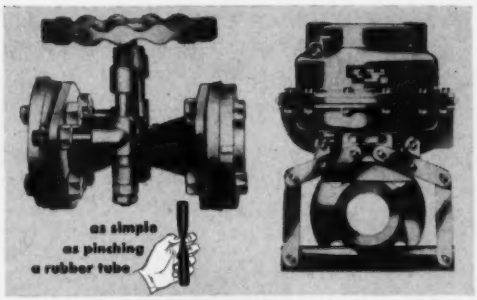

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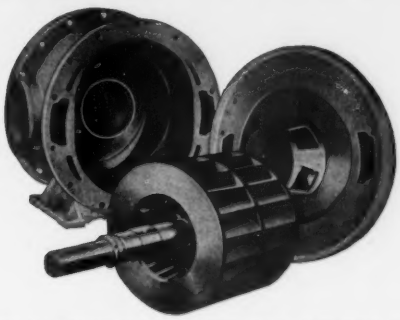

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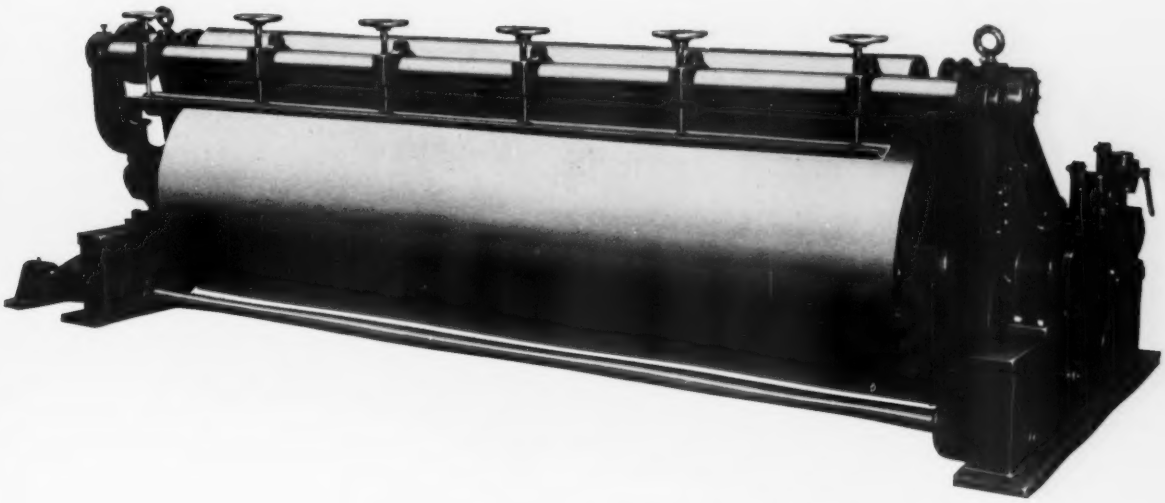

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